



MonthlyPIB Summary

July, 2026

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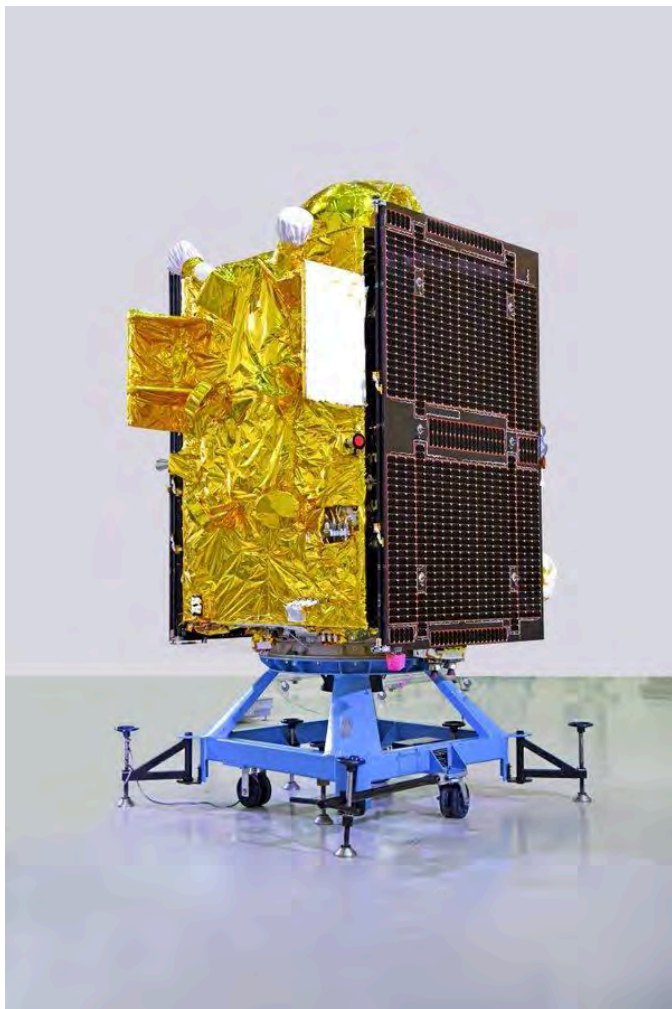
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1. GAGAN: NAVIGATING INDIA'S SKIES WITH PRECISION



- GAGAN is India's **Satellite-Based Augmentation System (SBAS)** developed to improve the accuracy, integrity, and reliability of Global Navigation Satellite Systems (GNSS).
- The system enhances aircraft navigation, especially during approach and landing, thereby improving aviation safety.
- GAGAN supports efficient air traffic management by enabling optimized flight routes, reducing fuel consumption, and lowering emissions.
- It reduces dependence on foreign augmentation systems and strengthens India's strategic capabilities in navigation services.
- The system has applications beyond civil aviation, including disaster management,

surveying, agriculture, maritime navigation, and geospatial services.

- GAGAN represents successful collaboration between ISRO and the Airports Authority of India (AAI).
- The initiative contributes to modernizing India's aviation infrastructure and promoting self-reliance in space-based technologies.
- It strengthens India's position among the few countries possessing an operational SBAS.

BACKGROUND / CONTEXT

What is GAGAN?

- **GAGAN** stands for **GPS Aided GEO Augmented Navigation**.
- It is India's **Satellite-Based Augmentation System (SBAS)**.
- Developed jointly by the **Indian Space Research Organisation (ISRO)** and the **Airports Authority of India (AAI)**.
- Certified for aviation use to improve navigation precision.

How GAGAN Works

- Receives signals from Global Navigation Satellite Systems (GNSS).
- Uses a network of ground reference stations to detect signal errors.
- Generates correction messages.
- Broadcasts corrected signals through geostationary satellites.

Applications

- Civil aviation.
- Air traffic management.
- Precision aircraft landing.
- Maritime navigation.
- Surveying and mapping.
- Disaster management.
- Precision agriculture.

Satellite-Based Augmentation System (SBAS)

- I. Improves the **accuracy, integrity, availability, and continuity** of satellite navigation signals.
- II. Similar systems include:
 - A. **WAAS** (USA)
 - B. **EGNOS** (Europe)

C. MSAS (Japan)

KEY HIGHLIGHTS

- **Full Form:** GPS Aided GEO Augmented Navigation (GAGAN).
- **Developed By:** ISRO and Airports Authority of India (AAI).
- **Technology:** Satellite-Based Augmentation System (SBAS).
- **Primary Objective:** Improve navigation accuracy and aviation safety.
- **Strategic Significance:** Enhances India's self-reliance in satellite navigation infrastructure.
- **Applications:** Aviation, maritime navigation, disaster management, surveying, and agriculture.
- **Environmental Impact:** Optimized flight paths reduce fuel consumption and carbon emissions.
- **Way Forward:** Expand GAGAN applications across sectors, strengthen satellite infrastructure, and integrate with emerging navigation technologies.

PRELIMS BOOSTER BOX

- **GAGAN:** GPS Aided GEO Augmented Navigation.
- **Type:** Satellite-Based Augmentation System (SBAS).
- **Developed By:** ISRO and Airports Authority of India (AAI).
- **GNSS:** Global Navigation Satellite System.
- **SBAS Functions:** Improves accuracy, integrity, availability, and continuity of navigation signals.
- **Geostationary Satellite:** Satellite orbiting at approximately **35,786 km** above the equator with the same rotational period as Earth.
- **WAAS:** Wide Area Augmentation System (USA).
- **EGNOS:** European Geostationary Navigation Overlay Service (Europe).
- **MSAS:** Multi-functional Satellite Augmentation System (Japan).
- **Difference:** **GAGAN** is an augmentation system, whereas **NavIC** is India's independent regional satellite navigation system.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

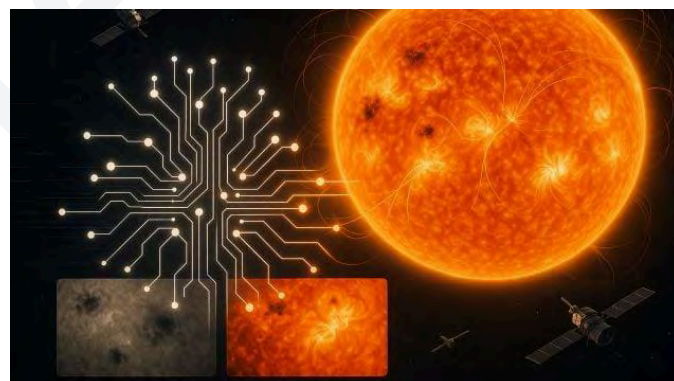
1. GAGAN is India's Satellite-Based Augmentation System developed jointly by ISRO and the Airports Authority of India.
2. GAGAN enhances the accuracy and integrity of Global Navigation Satellite System (GNSS) signals.
3. NavIC and GAGAN are identical systems performing the same function.

Which of the statements given above is/are correct?

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

Answer: (b)

2. AI STUDIES 100 YEARS OF SUN IMAGES TO TRACK BRIGHT SOLAR REGIONS FROM THE KODAIKANAL SOLAR OBSERVATORY



- AI techniques have been employed to analyse century-long archival solar observations from the Kodaikanal Solar Observatory.
- The study tracks **solar plagues**, which are bright regions associated with strong magnetic activity on the Sun.
- Long-term analysis helps scientists understand solar cycles and variations in solar magnetic activity.
- Improved monitoring of solar activity contributes to better forecasting of space weather events that can affect satellites, communication systems, and power grids.



- The research showcases the importance of digitising historical scientific records for modern data-driven analysis.
- AI significantly accelerates image processing and enhances the accuracy of identifying solar features.
- The findings strengthen India's contribution to solar physics and observational astronomy.
- The study highlights the growing integration of AI with space science and astrophysical research.

BACKGROUND / CONTEXT

Kodaikanal Solar Observatory (KSO)

- Established in **1899** at **Kodaikanal**.
- Operated by the **Indian Institute of Astrophysics**.
- One of the world's oldest continuously operating solar observatories.
- Maintains an extensive archive of solar observations spanning more than a century.

Solar Plages

- Bright regions observed in the Sun's **chromosphere**.
- Associated with intense magnetic fields and active regions.
- Often occur near sunspots and indicate enhanced solar activity.

Solar Cycle

- The Sun undergoes an approximately **11-year solar cycle**.
- Characterized by periodic changes in sunspot numbers and magnetic activity.
- Influences space weather and solar radiation reaching Earth.

Space Weather

- I. Refers to conditions in space influenced by solar activity.
- II. Can affect:
 - A. Satellites.
 - B. GPS and navigation systems.
 - C. Radio communications.
 - D. Power transmission networks.
 - E. Astronaut safety.

KEY HIGHLIGHTS

- **Research:** AI-based analysis of over 100 years of solar observations.
- **Institution:** Kodaikanal Solar Observatory under the Indian Institute of Astrophysics.
- **Focus:** Tracking solar plages to study long-term solar magnetic activity.
- **Technology:** Artificial Intelligence for automated image analysis.
- **Scientific Significance:** Improves understanding of solar cycles and space weather.
- **Strategic Importance:** Supports satellite operations, communication systems, and space missions.
- **Challenges:** Processing historical datasets, ensuring data consistency, and improving predictive accuracy.
- **Way Forward:** Expand AI applications in astronomy, digitise archival observations, and strengthen space weather forecasting capabilities.

PRELIMS BOOSTER BOX

- **Kodaikanal Solar Observatory (KSO):** Established in **1899** in Tamil Nadu.
- **Managing Institution:** Indian Institute of Astrophysics (IIA).
- **Solar Plages:** Bright chromospheric regions associated with strong magnetic fields.
- **Sunspots:** Dark, cooler regions on the Sun caused by intense magnetic activity.
- **Solar Cycle:** Approximately **11 years**.
- **Chromosphere:** Layer of the Sun's atmosphere above the photosphere.
- **Photosphere:** Visible surface of the Sun.
- **Space Weather:** Conditions caused by solar activity affecting Earth's space environment.
- **Coronal Mass Ejection (CME):** Large eruption of plasma and magnetic fields from the Sun.
- **Artificial Intelligence (AI):** Enables automated analysis of large scientific datasets and pattern recognition.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:



1. Solar plages are bright regions in the Sun's chromosphere associated with strong magnetic activity.
2. The Kodaikanal Solar Observatory is operated by the Indian Institute of Astrophysics.
3. Space weather has no impact on satellite communication or power transmission systems.

Which of the statements given above is/are correct?

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

Answer: (b)

3. INDIA, EU ADVANCE COOPERATION ON SUSTAINABLE SHIP RECYCLING; THREE INDIAN YARDS READY FOR EU RECOGNITION



- India and the European Union are enhancing collaboration to promote environmentally sustainable and safe ship recycling practices.
- Recognition of Indian recycling yards under EU standards will improve their access to the international ship recycling market.
- The initiative reflects India's progress in adopting global environmental, labour, and safety standards in the maritime sector.
- Sustainable ship recycling supports resource efficiency through the recovery and reuse of steel and other valuable materials.

- The development is expected to enhance India's competitiveness in the global circular economy.
- Compliance with international standards improves worker safety, environmental protection, and responsible waste management.
- The cooperation also strengthens India-EU maritime and economic relations.
- It aligns with India's commitment to sustainable industrial development and green shipping practices.

BACKGROUND / CONTEXT

Ship Recycling in India

- India is one of the world's leading ship recycling nations.
- The **Alang Ship Breaking Yard** in Gujarat is among the world's largest ship recycling facilities.
- Ship recycling recovers steel, machinery, and reusable equipment while ensuring environmentally sound disposal of hazardous materials.

Hong Kong International Convention (HKC)

- Adopted under the **International Maritime Organization** in 2009.
- Seeks to ensure safe and environmentally sound recycling of ships.
- Covers the entire lifecycle of ships, from design to recycling.

EU Ship Recycling Regulation

- Regulates recycling of EU-flagged ships.
- Requires recycling only in facilities included in the **European List of Ship Recycling Facilities**.
- Emphasizes worker safety, environmental protection, and proper management of hazardous materials.

Circular Economy

- Promotes efficient use, reuse, repair, recycling, and recovery of resources.
- Reduces waste generation and dependence on virgin raw materials.

KEY HIGHLIGHTS

- **Cooperation:** India-EU partnership on sustainable ship recycling.



- **Recognition:** Three Indian ship recycling yards ready for EU recognition.
- **Environmental Significance:** Promotes environmentally sound recycling and pollution control.
- **Economic Impact:** Enhances India's competitiveness in the global ship recycling industry.
- **Resource Efficiency:** Encourages recycling and supports the circular economy.
- **Worker Safety:** Strengthens occupational health and safety standards.
- **Challenges:** Hazardous waste management, environmental compliance, and continuous infrastructure upgradation.
- **Way Forward:** Expand internationally compliant recycling facilities, strengthen environmental monitoring, implement Hong Kong Convention standards, and promote green maritime practices.

PRELIMS BOOSTER BOX

- **Major Ship Recycling Hub:** Alang Ship Breaking Yard.
- **State:** Gujarat.
- **Hong Kong International Convention (HKC):** Adopted in **2009** under the International Maritime Organization (IMO).
- **Objective of HKC:** Safe and environmentally sound recycling of ships.
- **International Maritime Organization (IMO):** Specialized agency of the United Nations responsible for maritime safety, security, and prevention of marine pollution.
- **EU Ship Recycling Regulation:** Governs recycling of EU-flagged ships in approved facilities.
- **Circular Economy:** Economic model based on reuse, repair, refurbishment, and recycling of resources.
- **Hazardous Materials in Ships:** Asbestos, PCBs, heavy metals, and residual oils.
- **Green Recycling:** Recycling practices minimizing environmental damage and ensuring worker safety.
- **Blue Economy:** Sustainable use of ocean resources for economic growth while conserving marine ecosystems.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The Hong Kong International Convention was adopted under the International Maritime Organization (IMO).
2. Alang Ship Breaking Yard is located in Gujarat.
3. The Circular Economy encourages efficient resource use through reuse, repair, and recycling.

Which of the statements given above is/are correct?

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

Answer: (d)

4. AIR MARSHAL TEJINDER SINGH TAKES OVER AS CISC



- Air Marshal Tejinder Singh has taken over as the Chief of Integrated Defence Staff (CISC), a crucial position in India's defence establishment.
- The CISC assists the Chairman, Chiefs of Staff Committee (COSC) and supports integrated planning, joint operations, and capability development.
- The appointment comes as India continues to enhance tri-service integration and modernize its armed forces.
- The Headquarters Integrated Defence Staff (HQ IDS) plays a vital role in defence planning, training, logistics, and interoperability among the Army, Navy, and Air Force.



- Strengthening jointness is essential for addressing emerging challenges in multi-domain warfare.
- The appointment supports ongoing defence reforms aimed at improving operational efficiency and resource optimization.
- It also contributes to the development of integrated theatre commands and future-ready military capabilities.
- The transition reinforces India's commitment to building a technologically advanced and integrated defence structure.

BACKGROUND / CONTEXT

Chief of Integrated Defence Staff (CISC)

- I. The **Chief of Integrated Defence Staff (CISC)** heads the **Headquarters Integrated Defence Staff (HQ IDS)**.
- II. Functions as the principal staff officer responsible for integrated planning and coordination among the three Services.
- III. Assists in:
 - A. Joint operational planning.
 - B. Force modernization.
 - C. Capability development.
 - D. Training and logistics.
 - E. Defence policy implementation.

Headquarters Integrated Defence Staff (HQ IDS)

- Established in **2001** following the recommendations of the **Kargil Review Committee**.
- Promotes integration among the Army, Navy, and Air Force.
- Supports long-term defence planning and joint operations.

Higher Defence Management

- **President of India** is the Supreme Commander of the Armed Forces.
- **Chief of Defence Staff (CDS)** promotes jointness and integration among the three Services.
- **Department of Military Affairs (DMA)** was established in **2019** under the Ministry of Defence.

Integrated Theatre Commands

- Proposed unified military commands integrating resources of the Army, Navy, and Air Force.
- Aim to improve operational efficiency, interoperability, and rapid response.

KEY HIGHLIGHTS

- **Appointment:** Air Marshal Tejinder Singh assumes charge as CISC.
- **Organization:** Headquarters Integrated Defence Staff (HQ IDS).
- **Primary Role:** Promote integrated planning and coordination among the three Services.
- **Strategic Importance:** Strengthens joint military operations and higher defence management.
- **Defence Reforms:** Supports modernization and integrated theatre command initiatives.
- **Operational Impact:** Enhances interoperability, logistics, and capability development.
- **Challenges:** Multi-domain threats, technological advancements, and effective tri-service integration.
- **Way Forward:** Accelerate theatre command reforms, strengthen indigenous defence technologies, enhance joint training, and improve inter-service coordination.

PRELIMS BOOSTER BOX

- **CISC:** Chief of Integrated Defence Staff.
- **HQ IDS:** Headquarters Integrated Defence Staff.
- **HQ IDS Established: 2001.**
- **Basis:** Recommendation of the **Kargil Review Committee**.
- **Chief of Defence Staff (CDS):** Created in **2019** to promote jointness among the Armed Forces.
- **Department of Military Affairs (DMA):** Established under the Ministry of Defence in **2019**.
- **Supreme Commander of the Armed Forces:** President of India.
- **Integrated Theatre Command:** Unified command integrating Army, Navy, and Air Force resources.
- **Interoperability:** Ability of different military services to operate effectively together.

- **Multi-Domain Operations:** Integrated operations across land, air, sea, cyber, and space domains.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. Headquarters Integrated Defence Staff (HQ IDS) was established in 2001 following the recommendations of the Kargil Review Committee.
2. The Chief of Integrated Defence Staff (CISC) plays a key role in promoting jointness among the Army, Navy, and Air Force.
3. The President of India is the operational commander of the Indian Armed Forces.

Which of the statements given above is/are correct?

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

Answer: (b)

5. CCI APPROVES ACQUISITION OF CERTAIN SHAREHOLDING IN NIPPON LIFE INDIA AIF MANAGEMENT LIMITED BY DWS GROUP GMBH & CO. KGAA



- CCI's approval enables the proposed acquisition after assessing its impact on competition in the relevant market.
- Merger control by CCI seeks to ensure that combinations do not cause an appreciable adverse effect on competition.
- The transaction reflects continued foreign investment interest in India's financial services

and alternative investment management sector.

- Effective competition regulation promotes market efficiency, consumer welfare, and fair business practices.
- Foreign participation can enhance capital availability, innovation, and expertise in financial markets.
- CCI approvals provide regulatory certainty while maintaining competitive market structures.
- The development highlights the importance of transparent competition regulation in attracting investment.
- A robust competition framework supports sustainable economic growth and efficient capital allocation.

BACKGROUND / CONTEXT

Competition Commission of India (CCI)

- I. Statutory body established under the **Competition Act, 2002**.
- II. Became operational in **2009**.
- III. Responsible for:
 - A. Preventing anti-competitive practices.
 - B. Promoting and sustaining competition.
 - C. Protecting consumer interests.
 - D. Regulating combinations (mergers, acquisitions, and amalgamations).

Combination under the Competition Act

- I. Refers to:
 - A. Mergers.
 - B. Acquisitions.
 - C. Amalgamations.
- II. Certain combinations meeting prescribed thresholds require prior approval from CCI.

Alternative Investment Fund (AIF)

- Privately pooled investment vehicle regulated by the **Securities and Exchange Board of India (SEBI)**.
- Invests in accordance with a defined investment policy for the benefit of investors.

Categories of AIFs

- **Category I:** Venture Capital Funds, Infrastructure Funds, Social Venture Funds, etc.



- **Category II:** Private Equity Funds, Debt Funds, etc.
- **Category III:** Hedge Funds and other funds employing complex trading strategies.

KEY HIGHLIGHTS

- **Regulatory Approval:** CCI approved the proposed acquisition.
- **Transaction:** DWS Group to acquire certain shareholding in Nippon Life India AIF Management Limited.
- **Legal Framework:** Competition Act, 2002.
- **Sector:** Alternative Investment Fund (AIF) management.
- **Economic Significance:** Encourages investment while preserving market competition.
- **Governance Impact:** Strengthens transparent and rules-based competition regulation.
- **Challenges:** Market concentration, regulatory compliance, and maintaining competitive neutrality.
- **Way Forward:** Continue strengthening competition law enforcement, facilitate responsible investments, and promote efficient financial markets.

PRELIMS BOOSTER BOX

- **CCI:** Competition Commission of India.
- **Parent Law:** Competition Act, 2002.
- **Operational Since:** 2009.
- **Objective:** Prevent practices having an appreciable adverse effect on competition.
- **Combination:** Merger, acquisition, or amalgamation requiring regulatory scrutiny.
- **AIF:** Alternative Investment Fund.
- **Regulator of AIFs:** Securities and Exchange Board of India.
- **Category I AIF:** Venture capital, infrastructure, and social venture funds.
- **Category II AIF:** Private equity and debt funds.
- **Category III AIF:** Hedge funds and similar investment vehicles using complex strategies.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The Competition Commission of India was established under the Competition Act, 2002.

2. Alternative Investment Funds (AIFs) in India are regulated by the Securities and Exchange Board of India (SEBI).
3. Every merger or acquisition in India requires mandatory approval from the Competition Commission of India, irrespective of its size.

Which of the statements given above is/are correct?

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

Answer: (b)

1. MANAS: A DIGITAL SHIELD AGAINST DRUGS



- MANAS is a digital platform that enables citizens to anonymously report drug trafficking, drug abuse, and related illegal activities.
- The initiative strengthens intelligence gathering and public participation in narcotics control.
- Digital reporting facilitates timely action by enforcement agencies while protecting the identity of informants.
- MANAS complements India's broader strategy of demand reduction, supply control, and rehabilitation.
- The platform promotes community involvement in combating the menace of narcotic drugs and psychotropic substances.
- It supports technology-driven governance and improves coordination among enforcement agencies.
- The initiative contributes to public health, social security, and national security by addressing drug-related crimes.

- MANAS reflects the increasing use of digital technologies in law enforcement and citizen-centric governance.

BACKGROUND / CONTEXT

What is MANAS?

- MANAS (Madak Padarth Nishedh Asuchna Kendra)** is the **National Narcotics Helpline**.
- It provides a digital platform for citizens to report:
 - Drug trafficking.
 - Drug peddling.
 - Illegal cultivation.
 - Drug abuse.
- Allows confidential and anonymous reporting.

Nodal Agency

- Operated by the **Narcotics Control Bureau**.
- Functions under the **Ministry of Home Affairs**.

Legal Framework

- **Narcotic Drugs and Psychotropic Substances (NDPS) Act, 1985.**
- Regulates production, possession, sale, transport, and consumption of narcotic drugs and psychotropic substances.

National Action Plan for Drug Demand Reduction (NAPDDR)

- Implemented by the **Ministry of Social Justice and Empowerment**.
- Focuses on:
 - Awareness.
 - Prevention.
 - Treatment.
 - Rehabilitation.
 - Capacity building.

KEY HIGHLIGHTS

- **Platform:** MANAS (National Narcotics Helpline).
- **Objective:** Enable anonymous reporting of drug-related offences.
- **Nodal Agency:** Narcotics Control Bureau (NCB).



- **Governance Impact:** Strengthens citizen participation and intelligence-led enforcement.
- **Technology:** Digital reporting platform with confidential information sharing.
- **Social Significance:** Supports drug abuse prevention and public safety.
- **Challenges:** Drug trafficking networks, cross-border smuggling, cyber-enabled narcotics trade, and rehabilitation gaps.
- **Way Forward:** Strengthen public awareness, improve inter-agency coordination, expand rehabilitation services, and leverage AI and digital technologies for narcotics control.

PRELIMS BOOSTER BOX

- **MANAS: Madak Padarth Nishedh Asuchna Kendra** (National Narcotics Helpline).
- **Nodal Agency:** Narcotics Control Bureau (NCB).
- **Administrative Ministry:** Ministry of Home Affairs.
- **Parent Law: Narcotic Drugs and Psychotropic Substances (NDPS) Act, 1985.**
- **NCB:** Established in 1986.
- **NAPDDR:** National Action Plan for Drug Demand Reduction.
- **Psychotropic Substance:** Substance affecting mental processes such as perception, mood, or behaviour.
- **Narcotic Drug:** Substance capable of producing dependence and addiction as defined under the NDPS Act.
- **Golden Crescent:** Afghanistan–Iran–Pakistan region, a major source of illicit opiates.
- **Golden Triangle:** Myanmar–Laos–Thailand region, another major illicit drug-producing area.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. MANAS is the National Narcotics Helpline operated by the Narcotics Control Bureau.

2. The Narcotic Drugs and Psychotropic Substances (NDPS) Act was enacted in 1985.
3. The National Action Plan for Drug Demand Reduction (NAPDDR) is implemented by the Ministry of Home Affairs.

Which of the statements given above is/are correct?

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

Answer: (b)

2. BREAKTHROUGH IN SUPERALLOY BI-METALLIC STRUCTURES THROUGH ADDITIVE MANUFACTURING CAN REDUCE IMPORT OF SUPERALLOYS



- Researchers have successfully fabricated bi-metallic superalloy structures using additive manufacturing techniques.
- The breakthrough enables the production of complex, high-performance components with improved material efficiency and reduced manufacturing waste.



- Indigenous production of superalloys can significantly reduce import dependence for critical sectors such as aerospace, defence, nuclear energy, and power generation.
- Additive manufacturing allows precise control over material properties and enables fabrication of geometries that are difficult using conventional methods.
- The innovation supports the objectives of **Aatmanirbhar Bharat** by strengthening domestic advanced manufacturing capabilities.
- The technology has the potential to reduce production costs, improve supply chain resilience, and accelerate industrial innovation.
- It also contributes to strategic self-reliance in critical materials and high-end engineering applications.
- The breakthrough reinforces India's growing capabilities in materials science and advanced manufacturing.

BACKGROUND / CONTEXT

Superalloys

- I. High-performance alloys capable of retaining strength at extremely high temperatures.
- II. Commonly based on:
 - A. Nickel.
 - B. Cobalt.
 - C. Iron.
- III. Widely used in:
 - A. Aircraft engines.
 - B. Gas turbines.
 - C. Space applications.
 - D. Nuclear reactors.
 - E. Defence systems.

Bi-metallic Structures

- Components manufactured using two different metals or alloys.
- Designed to combine the advantages of each material.

- Improve strength, durability, thermal resistance, and cost efficiency.

Additive Manufacturing (3D Printing)

- I. Manufacturing process where components are built layer by layer from digital designs.
- II. Enables:
 - A. Complex geometries.
 - B. Reduced material wastage.
 - C. Rapid prototyping.
 - D. Customized manufacturing.

Strategic Importance

- Reduces dependence on imported critical materials.
- Supports indigenous defence and aerospace manufacturing.
- Enhances supply chain resilience.
- Promotes high-value manufacturing and technological innovation.

KEY HIGHLIGHTS

- **Breakthrough:** Development of superalloy bi-metallic structures using additive manufacturing.
- **Technology:** Advanced metal 3D printing.
- **Strategic Significance:** Reduces import dependence on critical superalloys.
- **Applications:** Aerospace, defence, power generation, nuclear energy, and space sectors.
- **Economic Impact:** Strengthens domestic manufacturing and improves supply chain resilience.
- **Innovation:** Enables complex component manufacturing with minimal material wastage.
- **Challenges:** High production costs, specialized equipment, material qualification, and large-scale commercialization.
- **Way Forward:** Expand indigenous R&D, strengthen industry-academia collaboration, develop domestic superalloy production capabilities, and scale advanced manufacturing infrastructure.

PRELIMS BOOSTER BOX

- **Superalloys:** High-temperature-resistant alloys used in critical engineering applications.
- **Common Base Metals:** Nickel, cobalt, and iron.
- **Additive Manufacturing:** Layer-by-layer manufacturing process from digital models.
- **3D Printing Advantage:** Minimal material wastage and complex geometries.
- **Bi-metallic Structure:** Component combining two different metals for enhanced performance.
- **Nickel-Based Superalloys:** Widely used in jet engines and gas turbines.
- **Gas Turbine:** Converts thermal energy into mechanical energy for power generation and aviation.
- **Powder Bed Fusion:** Common metal additive manufacturing technique using laser or electron beam.
- **Aatmanirbhar Bharat:** Initiative promoting self-reliance in strategic manufacturing.
- **Advanced Materials:** Materials engineered to provide superior mechanical, thermal, or chemical properties.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. Superalloys are designed to retain their mechanical strength at very high temperatures.
2. Additive manufacturing builds components layer by layer from a digital model.
3. Nickel-based superalloys are widely used in aircraft engines and gas turbines.

Which of the statements given above is/are correct?

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

Answer: (d)

3. NRAA-FUNDED WILD RICE CONSERVATION PROJECT SECURES MAJOR MILESTONE IN ASSAM



- The project aims to conserve wild rice populations in their natural habitats while preserving their genetic diversity.
- Wild rice species possess valuable traits such as resistance to pests, diseases, drought, floods, and salinity, making them important for future crop breeding.
- Conservation of these genetic resources enhances climate-resilient agriculture and supports long-term food security.
- The initiative promotes sustainable management of agro-biodiversity and complements national biodiversity conservation efforts.



- Scientific documentation and habitat protection improve the availability of genetic material for agricultural research.
- The project contributes to strengthening India's capacity to develop resilient rice varieties in the face of climate change.
- It also supports conservation of ecologically sensitive wetland ecosystems.
- The milestone reinforces the importance of integrating biodiversity conservation with agricultural development.

BACKGROUND / CONTEXT

National Rainfed Area Authority (NRAA)

- Established in **2006**.
- Functions under the **Department of Agriculture & Farmers Welfare**.
- Focuses on sustainable development of rainfed agriculture through integrated natural resource management.

Wild Rice

- I. Wild relatives of cultivated rice that occur naturally in wetlands and marshes.
- II. Possess important genes for:
 - A. Disease resistance.
 - B. Pest resistance.
 - C. Flood tolerance.
 - D. Drought tolerance.
 - E. Salinity tolerance.
- III. Used extensively in crop improvement programmes.

Oryza rufipogon

- Scientific name of one of the most important wild relatives of cultivated rice.
- Considered a progenitor of Asian cultivated rice (***Oryza sativa***).
- Found in wetlands and marshy habitats across parts of Asia, including Assam.

Importance of Genetic Diversity

- Enhances resilience against climate change.

- Supports development of improved crop varieties.
- Conserves valuable germplasm for future breeding programmes.
- Strengthens food and nutritional security.

KEY HIGHLIGHTS

- **Project:** NRAA-funded Wild Rice Conservation Project in Assam.
- **Objective:** Conserve wild rice genetic resources and their natural habitats.
- **Scientific Importance:** Supports development of climate-resilient rice varieties.
- **Environmental Significance:** Conserves biodiversity and wetland ecosystems.
- **Agricultural Impact:** Enhances food security through improved crop breeding.
- **Research Value:** Preserves valuable germplasm for future agricultural innovation.
- **Challenges:** Habitat degradation, urbanization, invasive species, and climate change.
- **Way Forward:** Strengthen in-situ and ex-situ conservation, expand genetic research, protect wetlands, and promote community participation in biodiversity conservation.

PRELIMS BOOSTER BOX

- **NRAA:** National Rainfed Area Authority.
- **Established:** 2006.
- **Scientific Name of Wild Rice:** *Oryza rufipogon*.
- **Cultivated Rice:** *Oryza sativa*.
- **Germplasm:** Living genetic resources used for crop improvement.
- **In-situ Conservation:** Conservation of species in their natural habitats.
- **Ex-situ Conservation:** Conservation outside natural habitats (seed banks, gene banks, botanical gardens).
- **Agro-biodiversity:** Diversity of plants, animals, and microorganisms used in agriculture.



- **Wetlands:** Ecosystems where water is the primary factor controlling the environment and associated biodiversity.
- **Climate-Resilient Agriculture:** Agricultural practices and crop varieties capable of withstanding climate variability.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

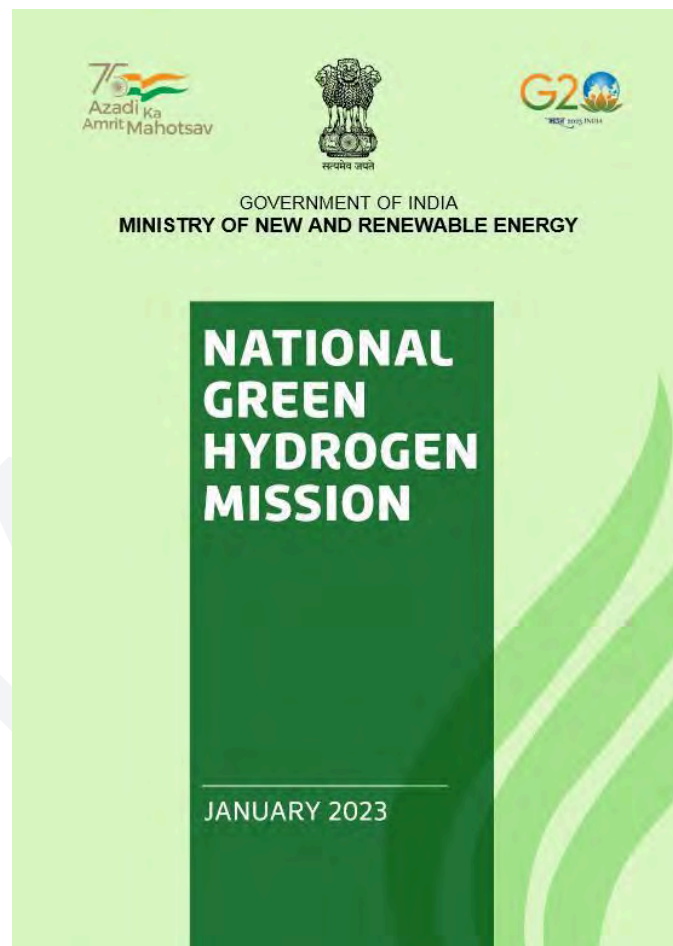
1. *Oryza rufipogon* is a wild relative of cultivated rice.
2. Wild rice species serve as important genetic resources for developing climate-resilient rice varieties.
3. In-situ conservation refers to conserving species outside their natural habitats.

Which of the statements given above is/are correct?

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

Answer: (b)

4. INDIA ADVANCES GLOBAL GREEN HYDROGEN LEADERSHIP UNDER NATIONAL GREEN HYDROGEN MISSION



- The National Green Hydrogen Mission aims to position India as a global producer, consumer, and exporter of green hydrogen and its derivatives.
- The Mission promotes domestic manufacturing of electrolyzers, scaling up renewable energy integration, and developing green hydrogen production capacity.
- Green hydrogen is expected to decarbonize hard-to-abate sectors such as steel, refineries, fertilizers, shipping, and heavy transport.



- The initiative enhances India's energy security by reducing dependence on imported fossil fuels and natural gas.
- It is expected to generate employment, attract investments, and strengthen India's clean technology ecosystem.
- The Mission aligns with India's climate commitments and long-term sustainable development objectives.
- International partnerships and technology collaboration are expected to enhance India's competitiveness in the global hydrogen economy.
- The Mission represents a key pillar of India's transition towards a low-carbon and self-reliant energy future.

BACKGROUND / CONTEXT

National Green Hydrogen Mission (NGHM)

- I. Approved in **January 2023**.
- II. **Nodal Ministry:** Ministry of New and Renewable Energy (MNRE).
- III. Vision:
 - A. Make India a global hub for green hydrogen production.
 - B. Promote exports.
 - C. Encourage domestic manufacturing of electrolyzers.
 - D. Support research, innovation, and skill development.

Green Hydrogen

- Produced by electrolysis of water using electricity generated from renewable energy sources.
- Generates **no carbon emissions** during production.

Hydrogen Colours

- **Green Hydrogen:** Produced using renewable energy.
- **Grey Hydrogen:** Produced from natural gas without carbon capture.

- **Blue Hydrogen:** Produced from fossil fuels with carbon capture and storage (CCS).

Applications

- Fertilizer industry.
- Petroleum refineries.
- Steel manufacturing.
- Heavy transport.
- Shipping.
- Energy storage.

KEY HIGHLIGHTS

- **Mission:** National Green Hydrogen Mission.
- **Nodal Ministry:** Ministry of New and Renewable Energy.
- **Objective:** Make India a global hub for green hydrogen production and exports.
- **Strategic Significance:** Strengthens energy security and supports clean energy transition.
- **Economic Impact:** Encourages investments, manufacturing, innovation, and employment generation.
- **Environmental Impact:** Reduces greenhouse gas emissions and supports net-zero goals.
- **Challenges:** High production costs, electrolyser availability, storage, transportation, and infrastructure requirements.
- **Way Forward:** Scale up renewable energy capacity, promote domestic electrolyser manufacturing, strengthen R&D, develop hydrogen infrastructure, and expand international cooperation.

PRELIMS BOOSTER BOX

- **National Green Hydrogen Mission:** Approved in **January 2023**.
- **Nodal Ministry:** Ministry of New and Renewable Energy (MNRE).
- **Green Hydrogen:** Produced through electrolysis using renewable energy.
- **Electrolysis:** Process of splitting water into hydrogen and oxygen using electricity.

- **Grey Hydrogen:** Produced from natural gas without carbon capture.
- **Blue Hydrogen:** Produced from fossil fuels with carbon capture and storage (CCS).
- **Electrolyser:** Device that produces hydrogen by electrolysis of water.
- **Hard-to-Abate Sectors:** Industries where emissions are difficult to eliminate, such as steel, cement, fertilizers, and shipping.
- **Net Zero:** Balancing greenhouse gas emissions with their removal from the atmosphere.
- **Renewable Energy Sources:** Solar, wind, hydro, biomass, and geothermal energy.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. Green hydrogen is produced through electrolysis of water using electricity generated from renewable energy sources.
2. The Ministry of New and Renewable Energy is the nodal ministry for the National Green Hydrogen Mission.
3. Grey hydrogen is produced using renewable energy without carbon emissions.

Which of the statements given above is/are correct?

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

Answer: (b)

5. COAL IMPORTS DECLINE BY NEARLY 13% IN APRIL 2026, REFLECTING STEADY PROGRESS TOWARDS IMPORT SUBSTITUTION



- The decline in coal imports indicates improved domestic availability and greater reliance on indigenous coal production.
- Import substitution helps reduce the country's import bill and strengthens energy security.
- Increased domestic coal production supports uninterrupted fuel supply to power plants and key industrial sectors.
- The initiative aligns with the Government's efforts to achieve self-reliance in the energy sector under **Aatmanirbhar Bharat**.
- Reduced imports contribute to improving the current account balance and conserving foreign exchange.
- Domestic coal continues to play a significant role in ensuring reliable electricity generation during the energy transition.
- Simultaneously, India is expanding renewable energy while ensuring energy affordability and grid stability.
- The development highlights the importance of balancing energy security, economic growth, and environmental sustainability.

BACKGROUND / CONTEXT

Coal Sector in India

- I. Coal remains the primary source of electricity generation in India.
- II. Used extensively in:
 - A. Thermal power generation.
 - B. Steel industry.
 - C. Cement industry.
 - D. Other energy-intensive industries.

Import Substitution

- I. Strategy to replace imported goods with domestically produced alternatives.
- II. Benefits include:
 - A. Reduced import dependence.
 - B. Savings in foreign exchange.
 - C. Strengthened domestic industries.
 - D. Enhanced supply chain resilience.

Major Institutions

- **Ministry of Coal** is responsible for policy formulation and development of the coal sector.
- **Coal India Limited** is the world's largest coal-producing company.

Energy Security

- Ensures reliable, affordable, and uninterrupted energy supply.
- Requires diversification of energy sources while strengthening domestic production.

KEY HIGHLIGHTS

- **Trend:** Coal imports declined by nearly 13% in April 2026.
- **Objective:** Reduce dependence on imported coal through domestic production.
- **Economic Significance:** Saves foreign exchange and improves the current account balance.
- **Energy Security:** Strengthens reliable fuel availability for power generation and industry.

- **Strategic Importance:** Supports Aatmanirbhar Bharat and domestic resource utilization.
- **Environmental Perspective:** Improved mining efficiency alongside expansion of renewable energy supports balanced energy transition.
- **Challenges:** Rising energy demand, logistics constraints, environmental concerns, and ensuring sustainable mining.
- **Way Forward:** Enhance domestic coal production, modernize mining technologies, improve transportation infrastructure, promote clean coal technologies, and accelerate renewable energy deployment.

PRELIMS BOOSTER BOX

- **Ministry of Coal:** Nodal ministry for coal sector development.
- **Coal India Limited (CIL):** World's largest coal-producing company.
- **Import Substitution:** Replacement of imports with domestic production.
- **Current Account Deficit (CAD):** Difference between a country's imports and exports of goods, services, and transfers.
- **Thermal Power:** Electricity generated by burning fossil fuels such as coal.
- **Coking Coal:** Used primarily in steel manufacturing.
- **Non-Coking Coal:** Used mainly for power generation.
- **Coal Gasification:** Conversion of coal into synthesis gas (syngas) for industrial use.
- **Energy Security:** Reliable, affordable, and sustainable energy availability.
- **Aatmanirbhar Bharat:** Initiative to strengthen domestic manufacturing and reduce import dependence.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. Coking coal is primarily used in steel manufacturing.



2. Import substitution aims to replace imported goods with domestically produced alternatives.
3. Coal India Limited is the world's largest coal-producing company.

Which of the statements given above is/are correct?

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

Answer: (d)

1. OLDEST ACCURATELY DATED BANYAN FOUND IN MUNGER, BIHAR



- Researchers developed a scientific methodology using **Accelerator Mass Spectrometry (AMS) radiocarbon dating** to determine the tree's age.
- The study estimated the Munger banyan to be approximately **700 years old**, making it the oldest accurately dated banyan tree.
- The research overcomes the limitation of conventional dendrochronology, as banyan trees generally lack distinct annual growth rings.
- The methodology improves the scientific documentation of heritage trees and strengthens biodiversity conservation efforts.

- The findings also redefine the historical chronology of the region by showing that the tree predates nearby colonial-era structures.
- The technique can be applied to other tropical tree species lacking annual growth rings.
- The study contributes to conservation biology, palaeobotany, and climate research.
- It strengthens India's role in advancing scientific methods for preserving natural heritage.

BACKGROUND / CONTEXT

Radiocarbon Dating

- Determines the age of organic materials by measuring the decay of **Carbon-14 (^{14}C)**.
- Particularly useful where annual growth rings are absent.

Accelerator Mass Spectrometry (AMS)

- Highly precise technique for measuring radiocarbon content.
- Requires very small sample quantities.
- Widely used in archaeology, geology, and palaeosciences.

Why Banyan Trees are Difficult to Date

- Banyan trees produce multiple aerial roots and secondary trunks.
- They generally lack distinct annual growth rings.
- Conventional **dendrochronology** is therefore ineffective.

Ecological Importance of Banyan Trees

- Scientific name: **Ficus benghalensis**.
- National Tree of India.
- Provides habitat for birds, insects, mammals, and epiphytes.
- Acts as a keystone species in many ecosystems due to year-round fruit production.

KEY HIGHLIGHTS

- **Discovery:** Munger banyan identified as the oldest accurately dated banyan tree.



- **Age:** Approximately **700 years**.
- **Methodology:** AMS-based radiocarbon dating of alpha-cellulose extracted from wood samples.
- **Institution:** Birbal Sahni Institute of Palaeosciences (BSIP).
- **Scientific Significance:** Provides a reliable protocol for dating tropical heritage trees.
- **Ecological Importance:** Supports biodiversity conservation and heritage tree protection.
- **Challenges:** Lack of annual growth rings in tropical trees and limited scientific age verification.
- **Way Forward:** Expand scientific dating of heritage trees, strengthen conservation policies, and integrate heritage tree documentation into biodiversity management.

PRELIMS BOOSTER BOX

- **Scientific Name of Banyan:** *Ficus benghalensis*.
- **National Tree of India:** Banyan.
- **Carbon-14 (^{14}C):** Radioactive isotope used in radiocarbon dating.
- **AMS:** Accelerator Mass Spectrometry.
- **Alpha-cellulose:** Stable component of plant cell walls commonly used in radiocarbon dating.
- **Dendrochronology:** Dating trees using annual growth rings.
- **Keystone Species:** Species having a disproportionately large effect on ecosystem stability.
- **BSIP:** Birbal Sahni Institute of Palaeosciences, Lucknow.
- **Research Published In:** *Quaternary Research*.
- **Heritage Trees:** Trees possessing ecological, historical, cultural, or scientific significance.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. Radiocarbon dating estimates the age of organic material by measuring the decay of Carbon-14.
2. Banyan trees are generally difficult to date using dendrochronology because they lack distinct annual growth rings.
3. *Ficus benghalensis* is the scientific name of the Peepal tree.

Which of the statements given above is/are correct?

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

Answer: (b)

2. MOU BETWEEN MASSEY UNIVERSITY, NEW ZEALAND AND NIFTEM-K TO STRENGTHEN FOOD TECHNOLOGY COOPERATION



- The MoU establishes a framework for academic and research collaboration between NIFTEM-K and Massey University.
- It promotes joint research, faculty and student exchanges, training programmes, and knowledge sharing in food science and technology.
- The partnership is expected to strengthen innovation in food processing, food safety,



value addition, and sustainable agri-food systems.

- International academic collaboration will enhance skill development and research capabilities in emerging areas of food technology.
- The initiative supports India's objective of developing a globally competitive food processing ecosystem.
- It also contributes to human resource development and technology transfer in the agri-food sector.
- The collaboration aligns with the goals of internationalization of higher education under the National Education Policy (NEP) 2020.
- The partnership is expected to improve innovation, entrepreneurship, and global best practices in food technology education.

BACKGROUND / CONTEXT

National Institute of Food Technology Entrepreneurship and Management (NIFTEM-K)

- Located at **Kundli, Haryana**.
- Functions under the **Ministry of Food Processing Industries (MoFPI)**.
- Declared an **Institution of National Importance** under the **NIFTEM Act, 2021**.
- Focuses on education, research, entrepreneurship, and skill development in food technology.

Massey University

- Public university in **New Zealand**.
- Known for teaching and research in agriculture, food technology, veterinary sciences, and life sciences.

Food Processing Sector

- Acts as a bridge between agriculture and industry.
- Promotes:
 - Value addition.

- Food safety.
- Employment generation.
- Export competitiveness.
- Reduction of post-harvest losses.

National Education Policy (NEP) 2020

- Encourages international collaborations.
- Promotes research, innovation, multidisciplinary education, and global academic partnerships.

KEY HIGHLIGHTS

- **Agreement:** MoU between Massey University and NIFTEM-K.
- **Objective:** Strengthen cooperation in food technology, research, and innovation.
- **Focus Areas:** Joint research, academic exchange, training, and entrepreneurship.
- **Institutional Significance:** Enhances international collaboration in higher education.
- **Economic Impact:** Supports growth of India's food processing sector and value-added agriculture.
- **Policy Alignment:** Complements NEP 2020 and initiatives for global academic engagement.
- **Challenges:** Technology transfer, funding, research commercialization, and industry-academia linkage.
- **Way Forward:** Expand collaborative research, strengthen innovation ecosystems, promote industry partnerships, and enhance global mobility of students and faculty.

PRELIMS BOOSTER BOX

- **NIFTEM-K:** National Institute of Food Technology Entrepreneurship and Management, Kundli.
- **Location:** Kundli, Haryana.
- **Administrative Ministry:** Ministry of Food Processing Industries (MoFPI).
- **NIFTEM Act: 2021.**
- **Status:** Institution of National Importance.



- **NEP 2020:** Promotes internationalization of higher education and multidisciplinary research.
- **Food Processing:** Conversion of agricultural produce into value-added food products.
- **Value Addition:** Enhancing the economic value of agricultural produce through processing.
- **Post-Harvest Losses:** Quantitative and qualitative losses occurring after harvest and before consumption.
- **Technology Transfer:** Process of transferring scientific knowledge and innovations for commercial or practical application.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. NIFTEM-K functions under the Ministry of Food Processing Industries.
2. NIFTEM-K was declared an Institution of National Importance under the NIFTEM Act, 2021.
3. The National Education Policy (NEP) 2020 encourages international academic collaborations and research partnerships.

Which of the statements given above is/are correct?

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

Answer: (d)

3. 'PASHUJANYA YUDH ABHYAS (PYA)' STRENGTHENS INDIA'S PREPAREDNESS FOR ANIMAL HEALTH EMERGENCIES AND ZOOBOTIC DISEASE OUTBREAKS



- Pashujanya Yudh Abhyas (PYA) is a simulation exercise designed to assess and strengthen India's preparedness for animal disease emergencies.
- The exercise enhances coordination among veterinary services, disaster management agencies, public health institutions, and other stakeholders.
- It focuses on improving surveillance, early warning systems, rapid response, and containment of zoonotic diseases.
- The initiative supports the One Health approach by integrating animal, human, and environmental health.
- Strengthened preparedness helps minimize economic losses in the livestock sector and protects public health.
- The exercise contributes to improving national biosecurity and disease surveillance infrastructure.
- It also strengthens India's compliance with international standards for animal health management.

- The initiative supports sustainable livestock development and national health security.

BACKGROUND / CONTEXT

Pashujanya Yudh Abhyas (PYA)

- I. National simulation exercise for preparedness against:
 - A. Animal disease outbreaks.
 - B. Zoonotic disease emergencies.
 - C. Livestock health crises.
- II. Tests emergency response mechanisms and inter-agency coordination.

One Health Approach

- I. Recognizes the interconnection between:
 - A. Human health.
 - B. Animal health.
 - C. Environmental health.
- II. Promotes multidisciplinary collaboration for disease prevention and control.

Zoonotic Diseases

- I. Diseases transmitted naturally between animals and humans.
- II. Examples:
 - A. Rabies.
 - B. Avian Influenza.
 - C. Brucellosis.
 - D. Anthrax.
 - E. Nipah Virus Disease.

Importance of Livestock Health

- Ensures food security.
- Protects rural livelihoods.
- Prevents economic losses.
- Supports safe trade in livestock and animal products.

KEY HIGHLIGHTS

- **Exercise:** Pashujanya Yudh Abhyas (PYA).
- **Objective:** Strengthen preparedness for animal health emergencies and zoonotic disease outbreaks.

- **Approach:** One Health framework integrating human, animal, and environmental health.
- **Focus Areas:** Surveillance, early detection, rapid response, and inter-agency coordination.
- **Strategic Importance:** Enhances national biosecurity and public health preparedness.
- **Economic Significance:** Protects livestock productivity and rural livelihoods.
- **Challenges:** Cross-border disease transmission, surveillance gaps, limited veterinary infrastructure, and antimicrobial resistance.
- **Way Forward:** Strengthen disease surveillance networks, expand One Health implementation, improve laboratory capacity, enhance veterinary services, and promote community awareness.

PRELIMS BOOSTER BOX

- **One Health:** Integrated approach linking human, animal, and environmental health.
- **Zoonotic Disease:** Disease naturally transmitted between animals and humans.
- **Rabies:** Viral zoonotic disease transmitted mainly through infected animal bites.
- **Avian Influenza:** Viral disease affecting birds with potential human transmission.
- **Brucellosis:** Bacterial zoonotic disease affecting livestock and humans.
- **Anthrax:** Bacterial disease caused by *Bacillus anthracis*.
- **Nipah Virus:** Zoonotic virus with fruit bats as natural reservoir hosts.
- **Biosecurity:** Measures to prevent introduction and spread of infectious diseases.
- **Disease Surveillance:** Continuous collection, analysis, and dissemination of health data.
- **Livestock Sector:** Important contributor to agricultural income, nutrition, and rural employment.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The One Health approach integrates human, animal, and environmental health.
2. Rabies and Brucellosis are examples of zoonotic diseases.
3. Biosecurity measures aim to prevent the introduction and spread of infectious diseases.

Which of the statements given above is/are correct?

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

Answer: (d)

4. INDIA-FRANCE ECONOMIC & FINANCIAL DIALOGUE (EFD) HELD IN AIX-EN-PROVENCE



- The India-France Economic & Financial Dialogue serves as a key institutional mechanism for advancing bilateral economic cooperation.
- Discussions covered investment, financial sector collaboration, clean energy, infrastructure financing, digital economy, and industrial partnerships.
- Both countries emphasized strengthening resilient supply chains and promoting sustainable economic growth.

- The dialogue reinforces cooperation in emerging technologies, innovation, and green finance.
- Enhanced financial and economic collaboration is expected to facilitate greater bilateral trade and investment flows.
- The engagement supports India's objectives of attracting foreign investment and accelerating economic transformation.
- It also strengthens India-France cooperation in the Indo-Pacific and global economic governance.
- The dialogue reflects the growing strategic and economic convergence between the two countries.

BACKGROUND / CONTEXT

India-France Economic & Financial Dialogue (EFD)

- I. Institutional platform for strengthening bilateral economic and financial cooperation.
- II. Facilitates discussions on:
 - A. Trade and investment.
 - B. Financial markets.
 - C. Infrastructure financing.
 - D. Industrial cooperation.
 - E. Green finance.
 - F. Digital economy.

India-France Strategic Partnership

- I. Established in **1998**.
- II. Covers cooperation in:
 - A. Defence.
 - B. Space.
 - C. Civil nuclear energy.
 - D. Climate action.
 - E. Maritime security.
 - F. Education and technology.
 - G. Economic cooperation.

Areas of Economic Cooperation

- Infrastructure development.



- Renewable energy.
- Green hydrogen.
- Digital technologies.
- Artificial Intelligence.
- Innovation and startups.
- Supply chain resilience.

Importance of France

- Major strategic partner of India in Europe.
- Significant investor in India.
- Key collaborator in defence, aerospace, clean energy, and advanced technology.

KEY HIGHLIGHTS

- **Dialogue:** India–France Economic & Financial Dialogue (EFD).
- **Co-Chairs:** Finance Minister Nirmala Sitharaman and French Minister Roland Lescure.
- **Venue:** Aix-en-Provence, France.
- **Focus Areas:** Trade, investment, finance, clean energy, digital economy, and industrial cooperation.
- **Strategic Significance:** Strengthens the India–France Strategic Partnership.
- **Economic Impact:** Promotes investment, technology collaboration, and sustainable growth.
- **Challenges:** Global economic uncertainty, supply chain disruptions, and evolving geopolitical dynamics.
- **Way Forward:** Deepen financial cooperation, expand green investments, strengthen innovation partnerships, and enhance bilateral trade and industrial collaboration.

PRELIMS BOOSTER BOX

- **India–France Strategic Partnership:** Established in **1998**.
- **France:** Founding member of the **European Union (EU)** and **NATO**.
- **International Solar Alliance (ISA):** Jointly launched by India and France in **2015**.

- **Headquarters of ISA:** Gurugram.
- **Major Areas of India–France Cooperation:** Defence, civil nuclear energy, space, climate, Indo-Pacific, and trade.
- **Green Finance:** Financing investments that generate environmental benefits.
- **Supply Chain Resilience:** Ability to maintain uninterrupted supply despite disruptions.
- **Indo-Pacific:** Strategic region extending from the Indian Ocean to the Pacific Ocean.
- **Foreign Direct Investment (FDI):** Investment made by an entity in one country into business interests in another country.
- **Economic Diplomacy:** Use of economic tools and partnerships to advance foreign policy objectives.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The India–France Strategic Partnership was established in 1998.
2. The International Solar Alliance (ISA) was jointly launched by India and France.
3. Green finance refers to financing investments that generate environmental benefits.

Which of the statements given above is/are correct?

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

Answer: (d)

5. DPIIT ENGAGES WITH STARTUPS UNDER FICCI MERCEDES-BENZ BHARAT INNOVATION & BUSINESS IDEAS CHALLENGE PROGRAMME



- The programme facilitates interaction between startups, industry, and government to foster innovation-led economic growth.
- DPIIT highlighted the importance of strengthening India's startup ecosystem through policy support, mentorship, and market access.
- Industry participation enables startups to validate technologies, access funding opportunities, and scale innovative solutions.
- The initiative encourages collaboration in emerging sectors such as mobility, sustainability, manufacturing, and digital technologies.
- Public-private partnerships play a crucial role in accelerating commercialization of innovations.
- The programme aligns with the objectives of **Startup India** and **Make in India** by promoting entrepreneurship and indigenous innovation.
- It contributes to employment generation, technology development, and economic competitiveness.
- The initiative reinforces India's position as one of the world's leading startup ecosystems.

BACKGROUND / CONTEXT

Department for Promotion of Industry and Internal Trade (DPIIT)

- I. Functions under the **Ministry of Commerce and Industry**.
- II. Responsible for:
 - A. Promotion of industrial development.
 - B. Startup recognition under **Startup India**.
 - C. Ease of Doing Business reforms.
 - D. Intellectual Property Rights (IPR) promotion.
 - E. Investment facilitation.

Startup India Initiative

- I. Launched on **16 January 2016**.
- II. Objective:
 - A. Promote entrepreneurship.
 - B. Encourage innovation.
 - C. Support startup growth through funding, tax incentives, incubation, and regulatory reforms.

Role of Industry Partnerships

- Provide mentorship.
- Facilitate technology commercialization.
- Improve market access.
- Encourage research and innovation.
- Strengthen startup-industry collaboration.

Public-Private Partnership in Innovation

- Accelerates technology adoption.
- Enhances investment opportunities.
- Supports product development and scaling.
- Promotes globally competitive innovation ecosystems.

KEY HIGHLIGHTS

- **Programme:** FICCI Mercedes-Benz Bharat Innovation & Business Ideas Challenge.



- **Lead Government Agency:** Department for Promotion of Industry and Internal Trade (DPIIT).
- **Objective:** Promote innovation, entrepreneurship, and industry-startup collaboration.
- **Focus Areas:** Emerging technologies, mobility, sustainability, and manufacturing innovation.
- **Economic Significance:** Encourages employment generation, investment, and technology commercialization.
- **Governance Impact:** Strengthens the Startup India ecosystem through government-industry engagement.
- **Challenges:** Access to finance, market linkage, technology scaling, and commercialization.
- **Way Forward:** Expand incubation support, strengthen industry partnerships, improve access to venture capital, and promote global market integration for startups.

PRELIMS BOOSTER BOX

- **DPIIT:** Department for Promotion of Industry and Internal Trade.
- **Administrative Ministry:** Ministry of Commerce and Industry.
- **Startup India:** Launched on **16 January 2016**.
- **Recognized Startup:** Startup fulfilling eligibility criteria prescribed by DPIIT.
- **Make in India:** Initiative launched in **2014** to promote manufacturing and investment.
- **Incubator:** Organization supporting startups through mentoring, infrastructure, and networking.
- **Accelerator:** Programme providing intensive mentoring, funding, and business development support.
- **Intellectual Property Rights (IPR):** Legal rights protecting inventions, designs, trademarks, and creative works.
- **Technology Commercialization:** Process of converting research and innovation into marketable products and services.

- **Ease of Doing Business:** Measures aimed at simplifying regulations and improving the business environment.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. DPIIT functions under the Ministry of Commerce and Industry.
2. Startup India was launched in 2016 to promote entrepreneurship and innovation.
3. Incubators primarily provide startups with mentoring, infrastructure, and networking support.

Which of the statements given above is/are correct?

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

Answer: (d)

1. ACADEMIC BANK OF CREDITS (ABC) AND APAAR



- The Academic Bank of Credits (ABC) enables students to digitally store, transfer, and redeem academic credits earned from recognized Higher Education Institutions (HEIs).
- APAAR provides every student with a unique lifelong academic identity, enabling seamless access to academic records across educational stages.
- Together, these initiatives promote flexibility, multiple entry and exit options, and multidisciplinary education.
- Digital academic records improve transparency, portability, and verification of qualifications.
- The initiatives facilitate credit mobility across institutions, encouraging lifelong learning and skill development.
- They support technology-enabled governance and improve efficiency in higher education administration.

- ABC and APAAR contribute to the realization of a learner-centric and digitally empowered education system.
- These reforms strengthen India's vision of creating an integrated and globally competitive education ecosystem.

BACKGROUND / CONTEXT

Academic Bank of Credits (ABC)

- A digital repository for academic credits earned by students.
- Implemented under the **National Education Policy (NEP) 2020**.
- Managed by the **University Grants Commission (UGC)**.
- Enables:
 - Credit accumulation.
 - Credit transfer.
 - Credit redemption for award of degrees.

APAAR

- **APAAR** stands for **Automated Permanent Academic Account Registry**.
- Provides every student with a **unique lifelong Academic ID**.
- Maintains digital academic records across schools and higher education institutions.
- Supports seamless student mobility within the education system.

National Education Policy (NEP) 2020

- Introduced multidisciplinary and flexible learning pathways.
- Promotes:
 - Multiple Entry and Multiple Exit (MEME).
 - Academic credit transfer.
 - Digital education.
 - Lifelong learning.
 - Student-centric education.

Digital Education Ecosystem

- Integrates digital platforms for:



- A. Student records.
- B. Academic credits.
- C. Certificates.
- D. Institutional governance.
- E. Learning resources.

KEY HIGHLIGHTS

- **Academic Bank of Credits:** Digital repository for storing and transferring academic credits.
- **APAAR:** Unique lifelong Academic ID for every student.
- **Nodal Agency (ABC):** University Grants Commission (UGC).
- **Policy Basis:** National Education Policy (NEP) 2020.
- **Educational Impact:** Promotes flexibility, credit mobility, and multidisciplinary learning.
- **Governance Impact:** Enhances transparency, digital record management, and ease of verification.
- **Challenges:** Digital accessibility, institutional interoperability, data privacy, and awareness among stakeholders.
- **Way Forward:** Expand institutional integration, strengthen cybersecurity, improve digital literacy, and ensure nationwide adoption of ABC and APAAR.

PRELIMS BOOSTER BOX

- **ABC:** Academic Bank of Credits.
- **APAAR: Automated Permanent Academic Account Registry.**
- **NEP:** National Education Policy, 2020.
- **UGC:** University Grants Commission.
- **Academic Credit:** Measure of learning outcomes earned after successful completion of a course.
- **Credit Transfer:** Transfer of earned academic credits between recognized institutions.
- **Multiple Entry–Multiple Exit (MEME):** Provision allowing students to enter or leave higher

education at different stages while retaining earned credits.

- **Academic ID:** Unique lifelong digital identity linked to a student's educational records.
- **Digital Repository:** Secure electronic platform for storing and managing academic records.
- **Lifelong Learning:** Continuous acquisition of knowledge and skills throughout an individual's life.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The Academic Bank of Credits (ABC) enables students to digitally store and transfer academic credits earned from recognized institutions.
2. APAAR provides every student with a unique lifelong Academic ID linked to their educational records.
3. The Academic Bank of Credits is implemented as part of the National Education Policy (NEP) 2020.

Which of the statements given above is/are correct?

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

Answer: (d)

2. VICE PRESIDENT SUBMITS SIR ENUMERATION FORM UNDER SPECIAL INTENSIVE REVISION OF ELECTORAL ROLL; APPEALS TO ELIGIBLE VOTERS TO JOIN THE EXERCISE



- The Special Intensive Revision (SIR) is conducted to verify and update electoral rolls by adding eligible voters, removing ineligible entries, and correcting existing records.
- The Vice President's participation highlights the importance of citizen involvement in maintaining free, fair, and inclusive elections.
- Accurate electoral rolls form the foundation of credible democratic processes and universal adult franchise.
- The exercise helps minimize duplication, eliminate ineligible entries, and improve the integrity of voter databases.
- Electoral roll revision strengthens transparency and public confidence in the electoral process.
- The initiative reflects the ECI's continuous efforts to improve electoral management through systematic verification.

- Public participation is essential to ensure that every eligible citizen can exercise the right to vote.
- The exercise contributes to strengthening democratic governance and electoral integrity.

BACKGROUND / CONTEXT

Special Intensive Revision (SIR)

- A comprehensive revision of electoral rolls conducted by the **Election Commission of India (ECI)**.
- Objectives:
 - Inclusion of eligible voters.
 - Deletion of deceased, shifted, or otherwise ineligible electors.
 - Correction of electoral details.
 - Improvement of electoral roll accuracy.

Election Commission of India (ECI)

- Constitutional body established under **Article 324** of the Constitution.
- Responsible for:
 - Conduct of elections.
 - Preparation and revision of electoral rolls.
 - Superintendence, direction, and control of elections to Parliament, State Legislatures, and the offices of the President and Vice President.

Electoral Roll

- Official list of persons eligible to vote in a constituency.
- A citizen must be:
 - An Indian citizen.
 - 18 years or above.**
 - Ordinarily resident in the concerned constituency.

Universal Adult Suffrage

- Every citizen aged **18 years or above** has the right to vote, subject to constitutional and legal qualifications.

KEY HIGHLIGHTS

- **Exercise:** Special Intensive Revision (SIR) of electoral rolls.
- **Conducted By:** Election Commission of India.
- **Objective:** Ensure accurate, updated, and inclusive electoral rolls.
- **Constitutional Basis:** Article 324 of the Constitution.
- **Democratic Significance:** Strengthens electoral integrity and universal adult franchise.
- **Governance Impact:** Enhances transparency and credibility of elections.
- **Challenges:** Duplicate entries, migration, public awareness, and timely verification.
- **Way Forward:** Increase voter awareness, leverage digital technologies, strengthen field verification, and encourage maximum citizen participation.

PRELIMS BOOSTER BOX

- **Article 324:** Vests the superintendence, direction, and control of elections in the Election Commission of India.
- **Election Commission of India (ECI):** Constitutional body responsible for conducting elections.
- **Electoral Roll:** Official list of eligible voters for a constituency.
- **Voting Age in India: 18 years** (reduced from 21 years by the **61st Constitutional Amendment Act, 1988**).
- **Universal Adult Suffrage:** Right of every eligible adult citizen to vote without discrimination.
- **Representation of the People Act, 1950:** Deals with preparation and revision of electoral rolls.
- **Representation of the People Act, 1951:** Governs the conduct of elections and electoral disputes.
- **Ordinarily Resident:** Person normally residing in a constituency for electoral registration purposes.

- **Elector Photo Identity Card (EPIC):** Voter identity card issued by the Election Commission.
- **SIR:** Special Intensive Revision of Electoral Rolls.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. Article 324 of the Constitution provides for the Election Commission of India.
2. The Representation of the People Act, 1950 primarily deals with the preparation and revision of electoral rolls.
3. The voting age in India was reduced from 21 years to 18 years through the 61st Constitutional Amendment Act, 1988.

Which of the statements given above is/are correct?

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

Answer: (d)

3. INDIA-ISRAEL BILATERAL INVESTMENT AGREEMENT (BIA) COMES INTO FORCE



- The India-Israel BIA provides legal protection to investors and facilitates greater bilateral investment flows.



- It establishes a transparent and stable investment regime while balancing investor rights with the host state's regulatory powers.
- The Agreement is expected to boost investments in sectors such as technology, innovation, agriculture, defence, renewable energy, and infrastructure.
- It strengthens economic ties by reducing investment risks and improving investor confidence.
- The BIA reflects India's evolving approach to investment treaties based on its **Model Bilateral Investment Treaty (BIT), 2016**.
- Enhanced investment cooperation supports economic growth, technology transfer, and employment generation.
- The Agreement further deepens the India-Israel Strategic Partnership through stronger economic engagement.
- It contributes to India's objective of attracting quality foreign investment while safeguarding national interests.

BACKGROUND / CONTEXT

Bilateral Investment Agreement (BIA)

- I. International treaty between two countries to promote and protect investments.
- II. Provides:
 - A. Protection against arbitrary expropriation.
 - B. Fair and equitable treatment.
 - C. Non-discriminatory treatment.
 - D. Transparent investment environment.
 - E. Dispute settlement mechanisms.

India's Model Bilateral Investment Treaty (BIT), 2016

- Serves as the basis for India's modern investment agreements.
- Balances investor protection with the government's right to regulate in public interest.

- Encourages sustainable and responsible investments.

India-Israel Economic Relations

- I. Strategic Partnership established in **2017**.
- II. Key sectors of cooperation:
 - A. Agriculture.
 - B. Defence.
 - C. Water management.
 - D. Innovation.
 - E. Cybersecurity.
 - F. Artificial Intelligence.
 - G. Renewable energy.
 - H. Startups.

Importance of Bilateral Investment Agreements

- Promote foreign direct investment (FDI).
- Improve investor confidence.
- Facilitate technology transfer.
- Support economic growth and job creation.
- Strengthen long-term economic partnerships.

KEY HIGHLIGHTS

- **Agreement:** India-Israel Bilateral Investment Agreement (BIA).
- **Objective:** Promote and protect bilateral investments.
- **Legal Significance:** Provides a transparent and predictable investment framework.
- **Economic Impact:** Encourages FDI, technology transfer, and industrial cooperation.
- **Strategic Importance:** Strengthens the India-Israel Strategic Partnership.
- **Key Sectors:** Technology, defence, agriculture, renewable energy, infrastructure, and innovation.
- **Challenges:** Global investment uncertainties, regulatory compliance, and dispute resolution.
- **Way Forward:** Promote high-quality investments, strengthen innovation



partnerships, facilitate ease of doing business, and expand bilateral economic cooperation.

PRELIMS BOOSTER BOX

- **BIA/BIT:** Bilateral Investment Agreement/Treaty for promotion and protection of investments.
- **India's Model BIT: 2016.**
- **FDI (Foreign Direct Investment):** Investment by an entity in one country into business interests in another country with lasting management interest.
- **Expropriation:** Government acquisition of private property for public purpose, generally subject to compensation.
- **Fair and Equitable Treatment (FET):** Standard ensuring non-arbitrary and transparent treatment of foreign investors.
- **National Treatment:** Foreign investors are treated no less favourably than domestic investors in like circumstances.
- **Most Favoured Nation (MFN):** Principle under which a country extends equal treatment to investors from treaty partners, where applicable.
- **India-Israel Strategic Partnership:** Established in 2017.
- **Major Areas of Cooperation:** Defence, agriculture, water, innovation, cybersecurity, and renewable energy.
- **Investment Treaty Objective:** Promote investment while preserving the sovereign right to regulate in public interest.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. A Bilateral Investment Agreement (BIA) seeks to promote and protect investments between two countries.
2. India's Model Bilateral Investment Treaty (BIT) was adopted in 2016.
3. One objective of modern investment treaties is to balance investor protection with the host state's right to regulate in the public interest.

Which of the statements given above is/are correct?

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

Answer: (d)

4. "SLOGANEERING AND DISRUPTION NEVER MAKE A LEADER; FACTS, REASON AND IDEAS DO": LOK SABHA SPEAKER



- The Speaker stressed that parliamentary democracy functions effectively through informed debate, reasoned discussion, and constructive participation.
- The remarks underscore the importance of maintaining discipline and decorum during legislative proceedings.
- Meaningful deliberation enhances legislative quality, accountability, and public trust in democratic institutions.
- Healthy parliamentary debates facilitate scrutiny of government policies and strengthen representative democracy.
- The statement reflects the constitutional vision of Parliament as a forum for discussion, consensus-building, and law-making.
- It also highlights the ethical responsibilities of elected representatives in upholding democratic norms.



- Strengthening parliamentary practices contributes to good governance, transparency, and institutional stability.
- The message encourages evidence-based policymaking and constructive political engagement.

BACKGROUND / CONTEXT

Parliament of India

- I. Supreme legislative body of the Union.
- II. Consists of:
 - A. President.
 - B. Lok Sabha.
 - C. Rajya Sabha.
- III. Performs:
 - A. Law-making.
 - B. Executive accountability.
 - C. Financial control.
 - D. Deliberation on public issues.

Speaker of the Lok Sabha

- Elected by the members of the Lok Sabha.
- Presides over House proceedings.
- Ensures orderly conduct of business.
- Interprets and enforces the Rules of Procedure.
- Acts as the guardian of the rights and privileges of the House.

Parliamentary Democracy

- I. Based on:
 - A. Collective responsibility.
 - B. Majority rule with minority rights.
 - C. Accountability of the Executive to the Legislature.
 - D. Debate, discussion, and consensus-building.

Parliamentary Decorum

- I. Requires:
 - A. Respectful conduct.
 - B. Orderly debates.
 - C. Adherence to rules.

- D. Constructive participation by members.

KEY HIGHLIGHTS

- **Theme:** Constructive debate over disruption in Parliament.
- **Institution:** Parliament of India.
- **Constitutional Significance:** Strengthens legislative accountability and democratic governance.
- **Role of Speaker:** Maintains order, impartiality, and smooth functioning of the House.
- **Governance Impact:** Promotes evidence-based policymaking and informed legislative scrutiny.
- **Democratic Value:** Encourages reasoned debate, consensus-building, and responsible leadership.
- **Challenges:** Frequent disruptions, declining debate time, and reduced legislative scrutiny.
- **Way Forward:** Strengthen parliamentary ethics, encourage informed discussions, improve committee functioning, and promote consensus-oriented legislative processes.

PRELIMS BOOSTER BOX

- **Article 79:** Parliament consists of the President, Rajya Sabha, and Lok Sabha.
- **Article 93:** Provides for the election of the Speaker and Deputy Speaker of the Lok Sabha.
- **Article 118:** Parliament may make rules for regulating its procedure and conduct of business.
- **Speaker of Lok Sabha:** Presiding officer of the Lok Sabha and guardian of its privileges.
- **Collective Responsibility: Article 75(3)** – Council of Ministers is collectively responsible to the Lok Sabha.
- **Question Hour:** First hour of a parliamentary sitting for seeking accountability from the Executive.
- **Zero Hour:** Period immediately after Question Hour for raising urgent public matters (not



mentioned in the Constitution or Rules of Procedure).

- **Parliamentary Committee:** Smaller body constituted to examine bills, budgets, and policy matters in detail.
- **Quorum:** One-tenth of the total membership of the House.
- **Parliamentary Privileges:** Special rights and immunities enjoyed by Parliament and its members for effective functioning.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

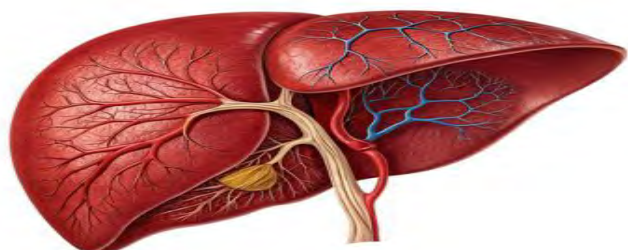
1. Article 93 of the Constitution provides for the election of the Speaker and Deputy Speaker of the Lok Sabha.
2. The Council of Ministers is collectively responsible to the Lok Sabha under Article 75(3).
3. Zero Hour is specifically provided for in the Constitution of India.

Which of the statements given above is/are correct?

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

Answer: (b)

5. INDIA'S LIVER EPIDEMIC, DIABETES SURGE PART OF A LARGER METABOLIC NEXUS; CALLS FOR MISSION-MODE PUBLIC AWARENESS



- India is witnessing a rapid increase in metabolic disorders, particularly diabetes, obesity, and fatty liver disease.
- These conditions share common risk factors such as unhealthy diet, physical inactivity, obesity, and insulin resistance.
- Early screening, timely diagnosis, and lifestyle interventions are critical to reducing disease burden and associated complications.
- The need for public awareness reflects the shift from curative to preventive and promotive healthcare.
- Addressing metabolic diseases can reduce healthcare costs, improve productivity, and enhance quality of life.
- The initiative aligns with India's efforts to strengthen primary healthcare and combat the growing burden of non-communicable diseases.
- It also supports the achievement of national health goals through community participation and behaviour change.
- A coordinated multi-sectoral approach involving health, nutrition, education, and public awareness is essential for effective disease prevention.

BACKGROUND / CONTEXT

Metabolic Disorders

- I. Group of disorders affecting the body's normal metabolic processes.
- II. Common disorders include:
 - A. Diabetes Mellitus.
 - B. Obesity.
 - C. Metabolic Dysfunction-Associated Steatotic Liver Disease (MASLD).
 - D. Dyslipidaemia.
 - E. Hypertension.

Metabolic Dysfunction-Associated Steatotic Liver Disease (MASLD)

- Formerly known as **Non-Alcoholic Fatty Liver Disease (NAFLD)**.
- Characterized by excessive fat accumulation in the liver unrelated to significant alcohol consumption.
- Strongly associated with obesity, diabetes, and metabolic syndrome.

Diabetes Mellitus

- Chronic disease characterized by elevated blood glucose levels.
- **Type 2 Diabetes** is the most common form and is closely linked to lifestyle and metabolic risk factors.

National Programme for Prevention and Control of Non-Communicable Diseases (NP-NCD)

- I. Implemented by the **Ministry of Health and Family Welfare**.
- II. Focuses on:
 - A. Prevention.
 - B. Early diagnosis.
 - C. Screening.
 - D. Treatment and management of major NCDs.

KEY HIGHLIGHTS

- **Issue:** Rising burden of liver diseases and diabetes as interconnected metabolic disorders.
- **Focus:** Prevention through lifestyle modification, awareness, and early screening.
- **Health Significance:** Reduces long-term complications and improves public health outcomes.
- **Governance Impact:** Strengthens preventive healthcare and primary health services.

- **Economic Impact:** Lowers healthcare expenditure and improves workforce productivity.
- **Strategic Importance:** Supports national efforts to combat non-communicable diseases.
- **Challenges:** Sedentary lifestyles, unhealthy diets, obesity, delayed diagnosis, and limited public awareness.
- **Way Forward:** Expand screening programmes, promote healthy lifestyles, strengthen primary healthcare, encourage regular physical activity, and launch sustained public awareness campaigns.

PRELIMS BOOSTER BOX

- **MASLD:** Metabolic Dysfunction-Associated Steatotic Liver Disease (formerly NAFLD).
- **Type 2 Diabetes:** Most common form of diabetes associated with insulin resistance.
- **Insulin Resistance:** Condition in which body cells respond poorly to insulin.
- **Metabolic Syndrome:** Cluster of conditions including obesity, hypertension, high blood sugar, and abnormal lipid levels.
- **BMI (Body Mass Index):** Indicator used to classify overweight and obesity.
- **NCDs:** Non-Communicable Diseases such as diabetes, cardiovascular diseases, cancers, and chronic respiratory diseases.
- **NP-NCD:** National Programme for Prevention and Control of Non-Communicable Diseases.
- **Primary Prevention:** Measures aimed at preventing the occurrence of disease.
- **Secondary Prevention:** Early detection and treatment to prevent disease progression.
- **Lifestyle Modification:** Healthy diet, regular physical activity, weight management, and avoidance of tobacco and harmful alcohol use.

PadhAI-GENERATED UPSC MCQ



Consider the following statements:

1. Metabolic Dysfunction–Associated Steatotic Liver Disease (MASLD) was formerly known as Non–Alcoholic Fatty Liver Disease (NAFLD).
2. Type 2 Diabetes is commonly associated with insulin resistance.
3. The National Programme for Prevention and Control of Non–Communicable Diseases (NP–NCD) focuses only on the treatment of diabetes.

Which of the statements given above is/are correct?

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

Answer: (b)

1. ETHANOL BLENDING IN INDIA



- The Ethanol Blended Petrol (EBP) Programme promotes blending ethanol with petrol to reduce dependence on imported crude oil.
- Ethanol blending lowers greenhouse gas emissions and supports India's clean energy transition.
- The programme provides an additional source of income for farmers by creating demand for agricultural feedstocks such as sugarcane and food grains.
- Expansion of ethanol production strengthens rural industries, employment, and biofuel infrastructure.
- The initiative improves energy security while reducing the country's import bill.
- It supports the objectives of **Aatmanirbhar Bharat** by encouraging domestic biofuel production.
- Ethanol blending also contributes to achieving India's climate and sustainable development commitments.
- Continued investments in feedstock diversification and second-generation biofuels will further strengthen the programme.

BACKGROUND / CONTEXT

Ethanol

- Ethanol (C_2H_5OH) is a renewable biofuel produced through the fermentation of sugar- and starch-rich feedstocks.

- Common feedstocks include:
 - Sugarcane juice.
 - Molasses.
 - Damaged food grains.
 - Maize.

Ethanol Blended Petrol (EBP) Programme

- Launched in **2003**.
- Implemented by the **Ministry of Petroleum and Natural Gas (MoPNG)**.
- Objective:
 - Blend ethanol with petrol.
 - Reduce fossil fuel dependence.
 - Lower emissions.
 - Improve farmer incomes.

National Policy on Biofuels, 2018

- Promotes production and use of biofuels.
- Encourages:
 - Feedstock diversification.
 - Advanced biofuels.
 - Second-Generation (2G) ethanol.
 - Circular economy.

Types of Ethanol

- **1G (First-Generation) Ethanol:** Produced from sugar and starch-based crops.
- **2G (Second-Generation) Ethanol:** Produced from agricultural residues and lignocellulosic biomass.

KEY HIGHLIGHTS

- **Programme:** Ethanol Blended Petrol (EBP).
- **Launch Year:** 2003.
- **Nodal Ministry:** Ministry of Petroleum and Natural Gas.
- **Objective:** Reduce crude oil imports through ethanol blending.
- **Economic Significance:** Enhances farmer income and reduces foreign exchange outflow.
- **Environmental Impact:** Reduces greenhouse gas and vehicular emissions.



- **Strategic Importance:** Strengthens energy security and domestic biofuel production.
- **Challenges:** Feedstock availability, water-intensive crops, logistics, storage infrastructure, and pricing.
- **Way Forward:** Promote second-generation ethanol, diversify feedstocks, improve bio-refinery infrastructure, encourage flex-fuel vehicles, and strengthen sustainable biofuel production.

PRELIMS BOOSTER BOX

- **Ethanol:** Renewable biofuel with chemical formula C_2H_5OH .
- **EBP Programme:** Launched in **2003**.
- **Nodal Ministry:** Ministry of Petroleum and Natural Gas (MoPNG).
- **National Policy on Biofuels: 2018.**
- **1G Ethanol:** Produced from sugarcane, molasses, maize, and other food crops.
- **2G Ethanol:** Produced from agricultural residues such as rice straw and bagasse.
- **Flex-Fuel Vehicle (FFV):** Vehicle capable of operating on varying blends of petrol and ethanol.
- **Bagasse:** Fibrous residue left after extraction of juice from sugarcane.
- **Biofuel:** Fuel produced from biological materials such as plants and agricultural waste.
- **Energy Security:** Reliable, affordable, and sustainable availability of energy resources.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The Ethanol Blended Petrol (EBP) Programme was launched in 2003.
2. Second-generation (2G) ethanol is produced mainly from agricultural residues and lignocellulosic biomass.
3. The National Policy on Biofuels was notified in 2018.

Which of the statements given above is/are correct?

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

Answer: (d)

2. INDIA TO CHAIR UNCTAD'S NINTH SESSION OF INTERGOVERNMENTAL GROUP OF EXPERTS ON CONSUMER PROTECTION



- India's chairmanship reflects international recognition of its consumer protection framework and regulatory experience.
- The Intergovernmental Group of Experts serves as a global platform for dialogue on consumer protection laws, policies, and best practices.
- Discussions are expected to focus on digital markets, e-commerce, cross-border consumer protection, and emerging technological challenges.
- India's leadership provides an opportunity to contribute to global norms on fair trade, consumer rights, and market transparency.
- The development strengthens India's role in international economic governance and multilateral cooperation.



- Effective consumer protection enhances market confidence, promotes fair competition, and safeguards consumer welfare.
- The chairmanship also supports India's vision of building transparent, inclusive, and digitally secure markets.
- It reinforces India's commitment to strengthening global cooperation in consumer protection.

BACKGROUND / CONTEXT

UNCTAD

- United Nations Conference on Trade and Development.**
- Established in **1964**.
- Headquarters: **Geneva**.
- Promotes:
 - Inclusive trade.
 - Sustainable development.
 - Investment.
 - Technology.
 - Consumer protection.
 - Competition policy.

Intergovernmental Group of Experts (IGE) on Consumer Protection

- Subsidiary body under UNCTAD.
- Provides a platform for:
 - Exchange of best practices.
 - Policy discussions.
 - Capacity building.
 - International cooperation on consumer protection.

Consumer Protection in India

- Governed by the **Consumer Protection Act, 2019**.
- Key features:
 - Consumer rights protection.
 - Product liability.
 - Consumer Disputes Redressal Commissions.

- Regulation of unfair trade practices.
- Consumer Protection Authority.

Central Consumer Protection Authority (CCPA)

- Established under the **Consumer Protection Act, 2019**.
- Functions:
 - Protect consumer rights.
 - Prevent unfair trade practices.
 - Regulate misleading advertisements.
 - Order product recalls where necessary.

KEY HIGHLIGHTS

- **Event:** Ninth Session of the UNCTAD Intergovernmental Group of Experts on Consumer Protection.
- **Chair:** India.
- **Institution:** United Nations Conference on Trade and Development (UNCTAD).
- **Focus Areas:** Consumer protection, digital markets, e-commerce, and international cooperation.
- **Strategic Significance:** Enhances India's leadership in global economic governance.
- **Governance Impact:** Promotes transparent markets and stronger consumer rights.
- **Challenges:** Cross-border e-commerce disputes, digital fraud, misleading advertisements, and data privacy.
- **Way Forward:** Strengthen international cooperation, improve digital consumer protection frameworks, enhance awareness, and promote fair and transparent markets.

PRELIMS BOOSTER BOX

- **UNCTAD:** United Nations Conference on Trade and Development.
- **Established:** 1964.
- **Headquarters:** Geneva.
- **Consumer Protection Act:** 2019.
- **CCPA:** Central Consumer Protection Authority.

- **Consumer Rights:** Right to safety, information, choice, hearing, redressal, and consumer education.
- **Product Liability:** Responsibility of manufacturers, sellers, or service providers for harm caused by defective products.
- **Unfair Trade Practice:** Deceptive or misleading business practice affecting consumers.
- **E-commerce:** Buying and selling of goods or services through electronic networks.
- **Competition Policy:** Framework to promote fair competition and prevent anti-competitive practices.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. UNCTAD was established in 1964 and is headquartered in Geneva.
2. The Central Consumer Protection Authority (CCPA) was established under the Consumer Protection Act, 2019.
3. Product liability under the Consumer Protection Act relates to the responsibility for harm caused by defective products.

Which of the statements given above is/are correct?

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

Answer: (d)

3. GOVERNMENT SECURES FUTURE OF NEARLY 65,000 ERSTWHILE ORDNANCE FACTORY EMPLOYEES THROUGH REDEPLOYMENT INTO REGULAR GOVERNMENT SERVICE



- The redeployment is part of the Government's defence production reforms initiated through the corporatisation of the Ordnance Factory Board.
- Employees have been absorbed into regular government service while supporting the functioning of the newly created Defence Public Sector Undertakings.
- Corporatisation aims to improve operational efficiency, competitiveness, accountability, and technological modernization of defence manufacturing.
- The reform is expected to enhance indigenous production of defence equipment and reduce import dependence.
- Protecting employee service conditions has facilitated a smoother transition during institutional restructuring.
- The initiative supports the objectives of **Aatmanirbhar Bharat** by strengthening India's domestic defence industrial base.
- Improved efficiency in defence manufacturing contributes to national security and export competitiveness.

- The reform represents a significant step towards transforming India's defence production ecosystem.

BACKGROUND / CONTEXT

Ordnance Factory Board (OFB)

- Established in **1979** under the **Department of Defence Production**, Ministry of Defence.
- Managed a network of ordnance factories manufacturing:
 - Weapons.
 - Ammunition.
 - Military vehicles.
 - Combat equipment.
 - Clothing and other defence stores.

Corporatisation of OFB

- Effective from **1 October 2021**.
- OFB was dissolved and its production units were reorganized into **seven Defence Public Sector Undertakings (DPSUs)**.
- Objectives:
 - Improve efficiency.
 - Enhance competitiveness.
 - Increase operational autonomy.
 - Promote innovation.
 - Strengthen defence exports.

Seven DPSUs

- **Munitions India Limited (MIL)**
- **Armoured Vehicles Nigam Limited (AVNL)**
- **Advanced Weapons and Equipment India Limited (AWEIL)**
- **Troop Comforts Limited (TCL)**
- **Yantra India Limited (YIL)**
- **India Optel Limited (IOL)**
- **Gliders India Limited (GIL)**

Defence Indigenisation

- Focuses on:
 - Domestic defence manufacturing.
 - Import substitution.

- Technology development.
- Defence exports.
- Strategic self-reliance.

KEY HIGHLIGHTS

- **Reform:** Redeployment of nearly 65,000 erstwhile OFB employees into Regular Government Service.
- **Institutional Change:** Corporatisation of the Ordnance Factory Board into seven DPSUs.
- **Objective:** Improve efficiency, competitiveness, and indigenous defence production.
- **Strategic Significance:** Strengthens defence self-reliance and national security.
- **Economic Impact:** Promotes modernization, innovation, and defence exports.
- **Governance Impact:** Ensures employee welfare while implementing structural reforms.
- **Challenges:** Technology upgradation, global competition, modernization, and productivity enhancement.
- **Way Forward:** Strengthen R&D, encourage private sector participation, expand defence exports, modernize production facilities, and enhance workforce skill development.

PRELIMS BOOSTER BOX

- **Ordnance Factory Board (OFB):** Corporatised on **1 October 2021**.
- **Administrative Ministry:** Ministry of Defence.
- **Department:** Department of Defence Production.
- **Number of DPSUs Created: 7.**
- **Munitions India Limited (MIL):** Manufactures ammunition and explosives.
- **Armoured Vehicles Nigam Limited (AVNL):** Manufactures armoured and combat vehicles.
- **Yantra India Limited (YIL):** Produces forgings, castings, and engineering components.
- **Defence Indigenisation:** Promotion of domestic production of defence equipment.



- **Aatmanirbhar Bharat:** Initiative to strengthen self-reliance across strategic sectors, including defence.
- **Defence Public Sector Undertaking (DPSU):** Government-owned enterprise engaged in defence production.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The Ordnance Factory Board (OFB) was corporatised into seven Defence Public Sector Undertakings on 1 October 2021.
2. The Department of Defence Production functions under the Ministry of Defence.
3. Defence indigenisation aims to enhance domestic manufacturing capability and reduce dependence on imports.

Which of the statements given above is/are correct?

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

Answer: (d)

4. INDIA TO HOST BRICS WOMEN WORKING GROUP MEETING IN KOCHI FROM 6–7 JULY 2026



- The BRICS Women Working Group serves as a platform for promoting gender-inclusive

development and women's economic participation.

- The meeting will facilitate exchange of best practices on women entrepreneurship, digital inclusion, financial inclusion, and skill development.
- It seeks to enhance cooperation among BRICS members in advancing women-led growth and sustainable development.
- Discussions are expected to focus on strengthening women's participation in emerging sectors, including technology and innovation.
- The initiative aligns with India's emphasis on women-led development as a driver of inclusive economic growth.
- International cooperation under BRICS enhances knowledge sharing and capacity building on gender-responsive policies.
- The meeting also strengthens India's role in shaping global discussions on gender equality and inclusive development.
- It reinforces the importance of women's empowerment in achieving sustainable and equitable growth.

BACKGROUND / CONTEXT

BRICS

- I. Intergovernmental grouping comprising:
 - A. Brazil.
 - B. Russia.
 - C. India.
 - D. China.
 - E. South Africa.
 - F. Egypt.
 - G. Ethiopia.
 - H. Iran.
 - I. Saudi Arabia.
 - J. United Arab Emirates.
 - K. Indonesia.
- II. Promotes cooperation in:

- A. Economic development.
- B. Trade.
- C. Finance.
- D. Innovation.
- E. Sustainable development.
- F. Global governance reforms.

BRICS Women Working Group (WWG)

- I. Platform for cooperation on:
 - A. Women entrepreneurship.
 - B. Financial inclusion.
 - C. Digital inclusion.
 - D. Leadership.
 - E. Skill development.
 - F. Innovation.

Women-Led Development

- I. Focuses on women as active contributors to economic growth and policymaking.
- II. Emphasizes:
 - A. Entrepreneurship.
 - B. Employment.
 - C. Education.
 - D. Leadership.
 - E. Digital empowerment.

Sustainable Development Goal (SDG) 5

- Achieve gender equality and empower all women and girls.

KEY HIGHLIGHTS

- **Event:** BRICS Women Working Group Meeting.
- **Host:** India.
- **Venue:** Kochi, Kerala.
- **Focus Areas:** Women entrepreneurship, innovation, digital inclusion, financial inclusion, and leadership.
- **Strategic Significance:** Strengthens cooperation among BRICS members on women-led development.
- **Economic Impact:** Promotes inclusive growth, entrepreneurship, and workforce participation.

- **Governance Impact:** Encourages gender-responsive policymaking and international collaboration.
- **Way Forward:** Expand women's access to finance, strengthen digital and entrepreneurial skills, promote leadership opportunities, and deepen BRICS cooperation on gender-inclusive development.

PRELIMS BOOSTER BOX

- **BRICS Members (2026):** Brazil, Russia, India, China, South Africa, Egypt, Ethiopia, Iran, Saudi Arabia, United Arab Emirates, and Indonesia.
- **BRICS:** Platform for cooperation among major emerging economies.
- **SDG 5:** Achieve gender equality and empower all women and girls.
- **Women-Led Development:** Development model where women are active drivers of economic and social transformation.
- **Financial Inclusion:** Access to affordable financial services for all sections of society.
- **Digital Inclusion:** Equitable access to digital technologies and digital literacy.
- **Entrepreneurship:** Creation and management of new business ventures.
- **Skill Development:** Enhancement of knowledge and competencies for employment and enterprise.
- **Gender Equality:** Equal rights, opportunities, and access to resources irrespective of gender.
- **Inclusive Growth:** Economic growth that benefits all sections of society.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. Sustainable Development Goal (SDG) 5 relates to achieving gender equality and empowering all women and girls.
2. The BRICS Women Working Group promotes cooperation on women's entrepreneurship, financial inclusion, and leadership.
3. India is one of the founding members of BRICS.

Which of the statements given above is/are correct?

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

Answer: (d)

5. ICMR WINS GOLD AT NATIONAL AWARDS FOR E-GOVERNANCE 2026



- ICMR-MINDS is an AI-powered digital platform designed to assist frontline healthcare workers in screening and managing common mental health disorders.
- The platform enables standardized mental healthcare delivery, particularly in areas with limited access to mental health specialists.
- It leverages Artificial Intelligence to improve early identification, referral, and management of mental health conditions.
- The initiative strengthens digital health governance by integrating technology with primary healthcare services.
- Recognition under the National Awards for e-Governance highlights the growing role of AI in improving citizen-centric public service delivery.
- The platform supports India's efforts to bridge the mental healthcare treatment gap through technology-enabled interventions.

- It complements the objectives of Digital Health and technology-driven governance reforms.
- The initiative demonstrates the potential of AI in enhancing accessibility, efficiency, and quality of healthcare services.

BACKGROUND / CONTEXT

ICMR

- Apex body for biomedical research in India.
- Functions under the **Department of Health Research, Ministry of Health and Family Welfare**.
- Established in **1911**.

ICMR-MINDS

- I. National Health Research Priority project.
- II. AI-enabled platform supporting:
 - A. Mental health screening.
 - B. Risk assessment.
 - C. Standardized clinical decision support.
 - D. Referral and follow-up.
- III. Designed for use by frontline healthcare workers.

National Awards for e-Governance (NAeG)

- Instituted by the **Department of Administrative Reforms and Public Grievances (DARPG)**.
- Recognizes excellence in digital governance and citizen-centric public service delivery.
- Encourages innovation through emerging technologies such as Artificial Intelligence and digital platforms.

Digital Health in India

- I. Promotes technology-enabled healthcare delivery.
- II. Focuses on:
 - A. Digital health records.
 - B. AI-assisted diagnosis.
 - C. Telemedicine.
 - D. Improved access to healthcare.
 - E. Efficient public health management.

KEY HIGHLIGHTS

- **Award:** Gold Award at National Awards for e-Governance 2026.
- **Awardee:** Indian Council of Medical Research (ICMR).
- **Project:** ICMR-MINDS.
- **Category:** Innovation by Use of AI and Other New Age Technologies for Providing Citizen-Centric Services.
- **Technology:** Artificial Intelligence-enabled mental health screening and decision support.
- **Governance Impact:** Strengthens digital public healthcare delivery and citizen-centric services.
- **Health Significance:** Improves early detection and management of common mental health disorders.
- **Way Forward:** Expand AI-enabled mental healthcare, strengthen digital health infrastructure, enhance frontline worker capacity, and integrate technology with primary healthcare services.

PRELIMS BOOSTER BOX

- **ICMR:** Indian Council of Medical Research.
- **Established:** 1911.
- **Administrative Ministry:** Ministry of Health and Family Welfare (Department of Health Research).
- **ICMR-MINDS:** AI-enabled platform for screening and management of common mental health disorders.
- **NAeG:** National Awards for e-Governance.
- **Instituted By:** Department of Administrative Reforms and Public Grievances (DARPG).
- **DARPG:** Functions under the Ministry of Personnel, Public Grievances and Pensions.
- **Artificial Intelligence (AI):** Technology enabling machines to perform tasks requiring human intelligence.

- **Citizen-Centric Governance:** Public service delivery focused on accessibility, efficiency, and user needs.
- **Digital Health:** Use of digital technologies to improve healthcare delivery and public health outcomes.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The Indian Council of Medical Research (ICMR) functions under the Department of Health Research, Ministry of Health and Family Welfare.
2. The National Awards for e-Governance are instituted by the Department of Administrative Reforms and Public Grievances (DARPG).
3. ICMR-MINDS is an AI-enabled platform for screening and management of common mental health disorders.

Which of the statements given above is/are correct?

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

Answer: (d)

1. INDIAHANDMADE: A DIGITAL PLATFORM FOR INDIA'S CRAFT HERITAGE



- Indiahandmade is a digital marketplace that showcases authentic Indian handicrafts and handloom products.
- The platform provides artisans with direct market access, reducing dependence on intermediaries and improving income opportunities.
- It promotes traditional craftsmanship while preserving India's diverse cultural heritage.
- Digital integration enhances visibility of artisans and expands domestic as well as international market reach.
- The initiative supports rural livelihoods, women artisans, and micro-enterprises engaged in traditional crafts.
- It complements the Government's efforts to promote self-reliance, digital commerce, and inclusive economic growth.
- The platform also contributes to the development of the creative economy through technology-enabled marketing.
- It strengthens India's global image as a hub of traditional arts and crafts.

BACKGROUND / CONTEXT

Indiahandmade

- Digital platform for promoting:

- Handicrafts.
- Handloom products.
- Artisan enterprises.

- Facilitates:

- Digital marketing.
- Market access.
- Promotion of traditional crafts.
- Consumer awareness.

Handicrafts Sector

- Labour-intensive sector providing employment to millions of artisans.
- Characterized by:
 - Traditional skills.
 - Cultural diversity.
 - Rural and household-based production.
 - Export potential.

Handloom Sector

- One of the largest sources of rural employment after agriculture.
- Produces eco-friendly and sustainable textile products.
- Preserves traditional weaving techniques and regional identities.

Role of Digital Platforms

- Improve market accessibility.
- Enhance transparency.
- Promote e-commerce.
- Expand export opportunities.
- Enable direct producer-to-consumer interaction.

KEY HIGHLIGHTS

- **Platform:** Indiahandmade.
- **Objective:** Promote Indian handicrafts and handloom products through digital technology.
- **Beneficiaries:** Artisans, weavers, self-help groups, and rural enterprises.
- **Economic Significance:** Enhances income generation and employment in the craft sector.



- **Cultural Significance:** Preserves traditional craftsmanship and India's intangible cultural heritage.
- **Digital Impact:** Expands market access and strengthens e-commerce participation.
- **Challenges:** Digital literacy, logistics, product standardization, and global competition.
- **Way Forward:** Strengthen digital capacity building, improve branding, expand export promotion, and integrate artisans with digital payment and logistics ecosystems.

PRELIMS BOOSTER BOX

- **Indiahandmade:** Digital platform promoting Indian handicrafts and handloom products.
- **Handloom:** Fabric produced using manually operated looms.
- **Handicrafts:** Products primarily made by hand using traditional skills.
- **Creative Economy:** Economic activities based on creativity, culture, and intellectual capital.
- **GI Tag (Geographical Indication):** Protects products originating from a specific geographical region possessing unique characteristics.
- **One District One Product (ODOP):** Initiative promoting district-specific products.
- **Self-Help Group (SHG):** Community-based group promoting savings, credit, and livelihood activities.
- **E-commerce:** Buying and selling goods and services through digital platforms.
- **Value Addition:** Increasing the economic value of products through design, branding, or processing.
- **Cultural Heritage:** Tangible and intangible traditions passed from one generation to another.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. Handloom products are manufactured using manually operated looms.

2. A Geographical Indication (GI) tag identifies products possessing qualities linked to a specific geographical region.
3. The handicrafts sector is a labour-intensive sector contributing to rural employment and preservation of traditional skills.

Which of the statements given above is/are correct?

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

Answer: (d)

2. ENVOYS OF SIX NATIONS PRESENT CREDENTIALS TO THE PRESIDENT OF INDIA





- Presentation of credentials is a formal diplomatic procedure through which foreign envoys are officially recognized by the receiving State.
- It enables ambassadors and high commissioners to formally assume their diplomatic responsibilities in India.
- Such ceremonies reinforce bilateral relations and facilitate political, economic, cultural, and strategic cooperation.
- Diplomatic engagements contribute to strengthening India's foreign policy objectives and international partnerships.
- Accredited envoys play a key role in promoting trade, investment, cultural exchanges, and multilateral cooperation.
- The ceremony reflects India's commitment to maintaining strong diplomatic ties with partner countries.
- It also strengthens institutional channels for dialogue and international collaboration.
- Regular diplomatic exchanges contribute to regional stability and global cooperation.

BACKGROUND / CONTEXT

Presentation of Credentials

- Formal diplomatic ceremony in which an ambassador or high commissioner presents **Letters of Credence** to the Head of State.
- Marks the official recognition of the envoy by the receiving country.
- Enables the envoy to discharge official diplomatic functions.

Letters of Credence

- Formal document issued by the Head of State of the sending country.
- Introduces and authorizes the ambassador or high commissioner to represent the sending State.

Ambassador and High Commissioner

- **Ambassador:** Diplomatic representative between countries that are not members of the Commonwealth.
- **High Commissioner:** Diplomatic representative exchanged between Commonwealth countries.

President of India

- Head of the Indian State.
- Receives foreign ambassadors and high commissioners under established diplomatic protocol.

KEY HIGHLIGHTS

- **Event:** Presentation of credentials by envoys of six nations.
- **Venue:** Rashtrapati Bhavan.
- **Purpose:** Formal commencement of diplomatic assignments in India.
- **Diplomatic Significance:** Strengthens bilateral relations and international cooperation.
- **Governance Impact:** Supports India's foreign policy and diplomatic engagement.
- **Strategic Importance:** Facilitates cooperation in trade, investment, security, and cultural exchanges.
- **Challenges:** Addressing evolving geopolitical and global economic challenges through sustained diplomacy.
- **Way Forward:** Deepen bilateral partnerships, expand people-to-people exchanges, and strengthen cooperation across strategic sectors.

PRELIMS BOOSTER BOX

- **Letters of Credence:** Official document through which a Head of State accredits an ambassador to another State.
- **Ambassador:** Diplomatic representative between non-Commonwealth countries.
- **High Commissioner:** Diplomatic representative exchanged between Commonwealth countries.



- **Vienna Convention on Diplomatic Relations: 1961.**
- **Diplomatic Immunity:** Protection granted to diplomats for effective performance of official functions.
- **Agrément:** Prior consent of the receiving State before appointment of an ambassador.
- **Ministry of External Affairs (MEA):** Nodal ministry for India's foreign relations.
- **Rashtrapati Bhavan:** Official residence of the President of India.
- **Head of State:** President of India.
- **Diplomatic Mission:** Official representation of one State in another.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. Letters of Credence are presented by an ambassador to the Head of State of the receiving country.
2. High Commissioners are exchanged between Commonwealth countries.
3. The Vienna Convention on Diplomatic Relations was adopted in 1961.

Which of the statements given above is/are correct?

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

Answer: (d)

3. HIGH-RESOLUTION RADIO STUDY REVEALS WIDESPREAD FAINT BLACK HOLE ACTIVITY IN NEARBY GALAXIES



- The study detected weak radio emissions from numerous nearby galaxies, indicating previously unnoticed black hole activity.
- These emissions originate from **supermassive black holes** located at the centres of galaxies.
- The findings suggest that low-level black hole activity is a common phase in galaxy evolution rather than an exception.
- Understanding such activity improves knowledge of galaxy formation, star formation, and the interaction between black holes and their host galaxies.
- High-resolution radio astronomy enables scientists to observe celestial phenomena obscured in visible wavelengths.
- The discovery contributes to advancing observational astrophysics and deep-space research.
- It also demonstrates the importance of next-generation radio telescopes in studying the Universe.
- The findings enrich scientific understanding of cosmic evolution and black hole physics.

BACKGROUND / CONTEXT

Black Hole

- A region in space where gravity is so strong that not even light can escape.
- Formed after the gravitational collapse of massive stars or through the growth of supermassive black holes at galactic centres.

Supermassive Black Hole (SMBH)

- Present at the centre of most large galaxies.
- Mass ranges from **millions to billions of times** the mass of the Sun.
- Influences the evolution and dynamics of its host galaxy.

Active Galactic Nucleus (AGN)

- Extremely luminous central region of a galaxy powered by matter falling into a supermassive black hole.
- Emits radiation across the electromagnetic spectrum, including radio waves.

Radio Astronomy

- Studies celestial objects by detecting **radio waves** emitted from space.
- Enables observation of objects hidden by dust and gas in visible light.

KEY HIGHLIGHTS

- **Discovery:** Widespread faint black hole activity detected in nearby galaxies.
- **Technique:** High-resolution radio astronomy observations.
- **Scientific Significance:** Reveals that low-level black hole activity is common in galaxies.
- **Astronomical Impact:** Improves understanding of galaxy evolution and supermassive black holes.
- **Technology Significance:** Demonstrates the capability of advanced radio telescopes in deep-space observations.
- **Research Importance:** Enhances knowledge of black hole growth and galaxy dynamics.

- **Challenges:** Detecting extremely weak radio emissions and interpreting complex astronomical data.
- **Way Forward:** Expand high-resolution radio surveys, develop next-generation telescopes, and integrate multi-wavelength observations for comprehensive galaxy studies.

PRELIMS BOOSTER BOX

- **Black Hole:** Region where escape velocity exceeds the speed of light.
- **Supermassive Black Hole (SMBH):** Black hole with millions to billions of solar masses found at galactic centres.
- **Active Galactic Nucleus (AGN):** Bright central region powered by accretion onto a supermassive black hole.
- **Accretion Disk:** Rotating disk of matter spiralling into a black hole.
- **Event Horizon:** Boundary beyond which nothing can escape a black hole.
- **Radio Waves:** Longest wavelength and lowest frequency region of the electromagnetic spectrum.
- **Radio Telescope:** Instrument used to detect radio emissions from celestial objects.
- **Galaxy:** Massive system of stars, gas, dust, dark matter, and a central black hole.
- **Light-Year:** Distance travelled by light in one year (≈ 9.46 trillion km).
- **Electromagnetic Spectrum:** Includes radio waves, microwaves, infrared, visible light, ultraviolet, X-rays, and gamma rays.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. Supermassive black holes are commonly found at the centres of large galaxies.
2. Radio astronomy studies celestial objects by detecting radio waves emitted from space.
3. The event horizon is the boundary beyond which nothing, including light, can escape a black hole.

Which of the statements given above is/are correct?

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

Answer: (d)

4. REPORT OF THE EXPERT

COMMITTEE ON ENERGY STATISTICS RELEASED



- The Expert Committee has proposed a comprehensive framework for compiling reliable, consistent, and internationally comparable energy statistics.
- The report recommends harmonizing energy data across sectors such as coal, petroleum, natural gas, electricity, and renewable energy.
- Improved energy statistics will enhance policy formulation, energy planning, and monitoring of the energy transition.
- The recommendations support better assessment of energy security, efficiency, and sustainability.
- A robust statistical framework will facilitate national and international reporting obligations.
- The report aligns India's energy accounting practices with globally accepted statistical standards.

- Reliable energy data is essential for informed decision-making in climate policy, infrastructure planning, and economic development.
- The initiative strengthens data-driven governance in the energy sector.

BACKGROUND / CONTEXT

Energy Statistics

- I. Systematic collection, compilation, and dissemination of data on:
 - A. Energy production.
 - B. Consumption.
 - C. Transformation.
 - D. Trade.
 - E. Stocks.
 - F. Energy efficiency.

Purpose of Energy Statistics

- Support evidence-based policymaking.
- Monitor energy security.
- Assess energy demand and supply.
- Track clean energy transition.
- Facilitate international reporting.

Energy Balance

- I. Comprehensive accounting framework showing:
 - A. Energy production.
 - B. Imports.
 - C. Exports.
 - D. Transformation.
 - E. Final consumption.
 - F. Losses.

International Standards

- **International Recommendations for Energy Statistics (IRES).**
- **System of Environmental-Economic Accounting (SEEA).**
- **United Nations International Standard Industrial Classification (ISIC).**

KEY HIGHLIGHTS

- **Report:** Expert Committee on Energy Statistics.
- **Objective:** Strengthen India's energy statistics framework.
- **Coverage:** Coal, petroleum, natural gas, electricity, renewable energy, and other energy sources.
- **Policy Significance:** Improves evidence-based energy planning and governance.
- **Strategic Importance:** Supports energy security and clean energy transition.
- **Economic Impact:** Enables efficient infrastructure planning and investment decisions.
- **Challenges:** Data standardization, inter-agency coordination, and timely reporting.
- **Way Forward:** Adopt international statistical standards, strengthen institutional coordination, leverage digital technologies, and improve data quality and accessibility.

PRELIMS BOOSTER BOX

- **Energy Balance:** Accounting framework showing energy supply and use within an economy.
- **Primary Energy:** Energy obtained directly from natural resources before conversion.
- **Secondary Energy:** Energy produced after transforming primary energy (e.g., electricity).
- **Energy Intensity:** Amount of energy consumed per unit of Gross Domestic Product (GDP).
- **Energy Efficiency:** Delivering the same output using less energy.
- **IRES:** International Recommendations for Energy Statistics.
- **SEEA:** System of Environmental-Economic Accounting.
- **ISIC:** International Standard Industrial Classification.

- **Renewable Energy:** Energy derived from naturally replenishing sources such as solar, wind, hydro, biomass, and geothermal.
- **Energy Security:** Uninterrupted availability of energy at affordable prices.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. An energy balance presents a comprehensive account of energy production, transformation, trade, and final consumption.
2. Primary energy refers to energy obtained directly from natural resources before any conversion process.
3. Energy intensity measures the amount of energy consumed per unit of Gross Domestic Product (GDP).

Which of the statements given above is/are correct?

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

Answer: (d)

5. DEPARTMENT OF CONSUMER AFFAIRS AMENDS LEGAL METROLOGY RULES FOR VERIFICATION OF HIGH-CAPACITY WEIGHING INSTRUMENTS



उपभोक्ता मामले विभाग
DEPARTMENT OF
CONSUMER AFFAIRS

सत्यमेव जयते



- The amendment revises the procedure for verification of high-capacity weighing instruments such as weighbridges and industrial weighing systems.
- It seeks to ensure greater accuracy and reliability in commercial transactions involving large quantities of goods.
- Simplified verification procedures are expected to reduce compliance costs for industries while maintaining measurement standards.
- Accurate weighing systems enhance transparency in trade and protect the interests of consumers and businesses alike.
- The reform supports efficient logistics, manufacturing, mining, and agricultural marketing operations.
- It strengthens the legal metrology framework through improved regulatory efficiency and standardized measurement practices.
- The amendment aligns with the Government's objective of improving ease of doing business without compromising consumer welfare.
- It promotes confidence in commercial transactions through uniform and precise measurement standards.

BACKGROUND / CONTEXT

Legal Metrology

- Science of measurement applied to:
 - Trade and commerce.
 - Health.
 - Safety.
 - Consumer protection.
 - Law enforcement.

Legal Metrology Act, 2009

- Regulates:
 - Standards of weights and measures.
 - Measuring instruments.
 - Verification and calibration.
 - Fair trade practices.

Legal Metrology (General) Rules, 2011

- Prescribe procedures for:
 - Verification.
 - Re-verification.
 - Inspection.
 - Use of weighing and measuring instruments.

High-Capacity Weighing Instruments

- Used for measuring heavy loads in:
 - Industries.
 - Warehouses.
 - Ports.
 - Logistics.
 - Mining.
 - Agriculture.
- Examples:
 - Weighbridges.
 - Rail weighbridges.
 - Large industrial weighing systems.

KEY HIGHLIGHTS

- **Amendment:** Legal Metrology (General) Rules.
- **Implementing Department:** Department of Consumer Affairs.
- **Objective:** Streamline verification of high-capacity weighing instruments.
- **Consumer Significance:** Ensures accurate measurement and fair commercial transactions.
- **Economic Impact:** Reduces compliance burden and improves ease of doing business.
- **Governance Impact:** Strengthens regulatory efficiency and standardization.
- **Challenges:** Uniform implementation, calibration infrastructure, and regular inspections.
- **Way Forward:** Enhance digital verification systems, strengthen calibration facilities, improve enforcement, and promote awareness among stakeholders.

PRELIMS BOOSTER BOX

- **Legal Metrology Act: 2009.**
- **Legal Metrology (General) Rules: 2011.**
- **Administrative Ministry:** Ministry of Consumer Affairs, Food and Public Distribution.
- **Department:** Department of Consumer Affairs.
- **Legal Metrology:** Application of legal requirements to measurements and measuring instruments.
- **Verification:** Examination of a measuring instrument to ensure compliance with prescribed standards.
- **Calibration:** Comparison of a measuring instrument against a recognized standard to determine accuracy.
- **Weighbridge:** High-capacity weighing instrument used to measure the weight of loaded vehicles.
- **Standard Weights and Measures:** Uniform measurement standards prescribed by law.
- **Consumer Protection:** Ensuring fairness, transparency, and accuracy in commercial transactions.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The Legal Metrology Act, 2009 regulates standards of weights and measures used in trade and commerce.
2. Calibration is the process of comparing a measuring instrument with a recognized standard to determine its accuracy.
3. High-capacity weighing instruments are commonly used in sectors such as logistics, mining, and warehousing.

Which of the statements given above is/are correct?

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

Answer: (d)

1. STRENGTHENING INDIA'S TOY ECOSYSTEM



- India is promoting indigenous toy manufacturing by encouraging innovation, skill development, and investment in the toy sector.
- Mandatory quality standards have improved product safety and enhanced consumer confidence.
- The toy ecosystem supports MSMEs, artisans, startups, and traditional toy clusters, generating employment and preserving cultural heritage.
- Domestic manufacturing reduces import dependence and strengthens global competitiveness.

- Promotion of educational and eco-friendly toys contributes to child development and sustainable production.
- The initiatives enhance export potential and integrate Indian manufacturers into global value chains.
- Strengthening the toy industry supports inclusive economic growth and rural livelihoods.
- The reforms contribute to building a resilient and globally competitive manufacturing ecosystem.

BACKGROUND / CONTEXT

India's Toy Industry

- I. Comprises:
 - A. MSMEs.
 - B. Traditional artisans.
 - C. Handicraft clusters.
 - D. Modern manufacturing units.
- II. Produces:
 - A. Educational toys.
 - B. Wooden toys.
 - C. Soft toys.
 - D. Plastic toys.
 - E. Electronic toys.

National Action Plan for Toys

- I. Focuses on:
 - A. Quality manufacturing.
 - B. Innovation.
 - C. Skill development.
 - D. Cluster development.
 - E. Export promotion.
 - F. Promotion of indigenous toys.

Quality Control

- **Bureau of Indian Standards (BIS)** prescribes quality and safety standards for toys.
- Mandatory certification ensures consumer safety and product reliability.

Economic Significance

- Generates employment.
- Supports MSMEs and artisans.
- Encourages exports.
- Promotes local manufacturing.
- Preserves traditional craftsmanship.

KEY HIGHLIGHTS

- **Focus:** Strengthening India's toy manufacturing ecosystem.
- **Objective:** Promote indigenous production, quality, innovation, and exports.
- **Institutional Support:** Quality standards, skill development, and cluster-based manufacturing.
- **Economic Significance:** Employment generation, MSME growth, and export promotion.
- **Cultural Significance:** Preservation of traditional toy-making heritage.
- **Governance Impact:** Supports Aatmanirbhar Bharat and Make in India.
- **Challenges:** Global competition, technology adoption, branding, and supply chain development.
- **Way Forward:** Strengthen R&D, expand toy clusters, enhance export competitiveness, encourage sustainable manufacturing, and improve global market access.

PRELIMS BOOSTER BOX

- **BIS:** Bureau of Indian Standards.
- **BIS Act: 2016.**
- **Quality Control Order (QCO):** Mandates compliance with prescribed quality standards.
- **MSME:** Micro, Small and Medium Enterprises.
- **Aatmanirbhar Bharat:** Initiative promoting self-reliance in strategic and manufacturing sectors.
- **Make in India:** Launched in **2014** to boost manufacturing and investment.

- **Toy Cluster:** Geographic concentration of toy manufacturing units and artisans.
- **Value Chain:** Activities involved in designing, manufacturing, marketing, and distributing products.
- **Export Competitiveness:** Ability to compete effectively in international markets.
- **Eco-friendly Toys:** Toys manufactured using sustainable and environmentally friendly materials.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The Bureau of Indian Standards (BIS) prescribes quality and safety standards for toys in India.
2. The BIS Act was enacted in 2016.
3. Strengthening the toy ecosystem contributes to MSME growth, employment generation, and export promotion.

Which of the statements given above is/are correct?

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

Answer: (d)

2. INDIA'S CIVILISATIONAL VALUES CONTINUE TO GUIDE HUMANITY: LOK SABHA SPEAKER

वसुधैव कुटुम्बकम्



- The Speaker emphasized that India's civilisational ethos is rooted in tolerance, pluralism, dialogue, and respect for diversity.



- Indian philosophical traditions advocate peaceful coexistence, harmony, and collective welfare.
- These values continue to shape India's democratic institutions, foreign policy, and development approach.
- India's cultural heritage strengthens its soft power and enhances its role in global diplomacy.
- Civilisational principles such as inclusiveness and sustainability remain relevant in addressing modern global challenges.
- The statement reflects India's vision of fostering international cooperation through shared human values.
- Promotion of cultural heritage also contributes to national identity and social cohesion.
- The remarks reinforce India's image as a civilization that values peace, dialogue, and universal welfare.

BACKGROUND / CONTEXT

Indian Civilisational Values

- Based on principles of:
 - Peace.
 - Non-violence.
 - Tolerance.
 - Pluralism.
 - Compassion.
 - Respect for diversity.
 - Harmony with nature.

Key Philosophical Concepts

- **Vasudhaiva Kutumbakam** – "The World is One Family."
- **Sarve Bhavantu Sukhinah** – "May all beings be happy."
- **Ahimsa** – Principle of non-violence.
- **Dharma** – Ethical duty and righteous conduct.

India's Soft Power

- Includes:

- Yoga.
- Ayurveda.
- Buddhism.
- Cultural heritage.
- Democratic traditions.
- Literature and philosophy.

Constitutional Reflection

- Constitutional values such as justice, liberty, equality, fraternity, secularism, and dignity resonate with India's long civilisational traditions.

KEY HIGHLIGHTS

- **Theme:** India's civilisational values and their global relevance.
- **Core Principles:** Peace, tolerance, pluralism, inclusivity, and coexistence.
- **Strategic Significance:** Strengthens India's soft power and global engagement.
- **Governance Impact:** Reinforces democratic values, constitutional morality, and inclusive development.
- **Cultural Significance:** Preserves India's rich civilisational heritage and identity.
- **Global Relevance:** Encourages dialogue, cooperation, and sustainable peace.
- **Challenges:** Cultural preservation amid globalization and safeguarding heritage from degradation.
- **Way Forward:** Promote cultural diplomacy, preserve heritage, strengthen value-based education, and encourage intercultural dialogue.

PRELIMS BOOSTER BOX

- **Vasudhaiva Kutumbakam:** Phrase from the **Maha Upanishad** meaning "The World is One Family."
- **Ahimsa:** Principle of non-violence central to Jainism, Buddhism, and Hindu philosophy.
- **Dharma:** Concept of righteous conduct and moral duty.



- **Sarve Bhavantu Sukhinah:** Ancient Sanskrit prayer emphasizing universal well-being.
- **Soft Power:** Ability of a country to influence others through culture, values, and diplomacy rather than coercion.
- **Fundamental Duties: Article 51A** encourages citizens to preserve India's rich heritage and composite culture.
- **Article 49:** Obligation of the State to protect monuments and objects of national importance.
- **UNESCO World Heritage Sites:** Places recognized for outstanding universal cultural or natural value.
- **Cultural Diplomacy:** Use of culture to strengthen international relations.
- **Pluralism:** Peaceful coexistence of diverse cultures, religions, and communities within a society.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The phrase *Vasudhaiva Kutumbakam* is found in the **Maha Upanishad**.
2. Article 51A of the Constitution includes the duty of citizens to preserve India's rich heritage and composite culture.
3. Soft power refers to a country's ability to influence others through culture, values, and diplomacy rather than coercion.

Which of the statements given above is/are correct?

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

Answer: (d)

3. INDIA AND COSTA RICA HOLD THE FIRST JOINT ECONOMIC AND TRADE COMMITTEE (JETCO) MEETING



- The inaugural JETCO meeting provides an institutional mechanism to enhance bilateral trade and economic relations.
- Discussions covered trade facilitation, investment promotion, digital economy, pharmaceuticals, agriculture, renewable energy, and innovation.
- Both countries explored opportunities to diversify trade and strengthen business-to-business engagement.
- The mechanism aims to identify and address barriers affecting bilateral commerce.
- Enhanced economic cooperation is expected to boost investment flows and technology transfer.
- The meeting reflects India's strategy of expanding partnerships with Latin American countries.
- Stronger bilateral relations contribute to resilient supply chains and sustainable economic growth.
- The initiative reinforces mutual commitment to long-term economic collaboration.

BACKGROUND / CONTEXT

Joint Economic and Trade Committee (JETCO)

- I. Institutional bilateral mechanism for:
 - A. Trade promotion.
 - B. Investment cooperation.

- C. Economic dialogue.
- D. Resolution of trade-related issues.
- E. Business collaboration.

India–Costa Rica Relations

- I. Diplomatic relations established in **1970**.
- II. Areas of cooperation include:
 - A. Trade.
 - B. Pharmaceuticals.
 - C. Information Technology.
 - D. Renewable energy.
 - E. Agriculture.
 - F. Education.
 - G. Capacity building.

Costa Rica

- I. Capital: **San José**
- II. Currency: **Costa Rican Colón**.
- III. Known for:
 - A. Biodiversity.
 - B. Environmental conservation.
 - C. Renewable energy leadership.

India's Engagement with Latin America

- I. Focuses on:
 - A. Trade diversification.
 - B. Energy cooperation.
 - C. Pharmaceuticals.
 - D. Digital technologies.
 - E. Investment.
 - F. Food security.

KEY HIGHLIGHTS

- **Event:** First India–Costa Rica Joint Economic and Trade Committee (JETCO) Meeting.
- **Objective:** Strengthen bilateral trade, investment, and economic cooperation.
- **Focus Areas:** Trade, pharmaceuticals, IT, agriculture, renewable energy, innovation, and digital economy.
- **Strategic Significance:** Deepens India's economic engagement with Latin America.

- **Economic Impact:** Promotes trade diversification, investment, and technology partnerships.
- **Governance Impact:** Establishes a structured mechanism for addressing trade-related issues.
- **Challenges:** Limited trade volume, geographical distance, logistics, and market access barriers.
- **Way Forward:** Expand business partnerships, improve connectivity, encourage private-sector engagement, and strengthen cooperation in emerging sectors.

PRELIMS BOOSTER BOX

- **JETCO:** Joint Economic and Trade Committee.
- **Purpose:** Institutional mechanism for promoting bilateral trade and investment.
- **Costa Rica Capital:** **San José**.
- **Currency:** Costa Rican Colón.
- **Diplomatic Relations:** India and Costa Rica established diplomatic ties in **1970**.
- **Latin America:** Region comprising countries in Central America, South America, and the Caribbean.
- **Trade Facilitation:** Measures that simplify and accelerate international trade procedures.
- **Technology Transfer:** Sharing of technological knowledge and innovations between countries.
- **Renewable Energy:** Energy generated from naturally replenishing sources such as solar, wind, hydro, and geothermal.
- **Supply Chain Resilience:** Ability of supply chains to withstand and recover from disruptions.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The Joint Economic and Trade Committee (JETCO) is an institutional mechanism to promote bilateral trade and investment.
2. The capital of Costa Rica is **San José**.

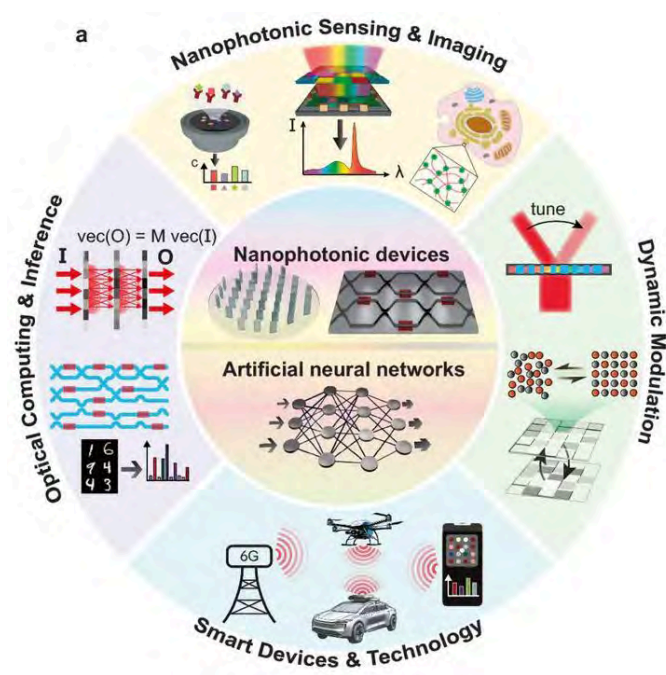
3. India established diplomatic relations with Costa Rica in **1970**.

Which of the statements given above is/are correct?

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

Answer: (d)

4. RESEARCHERS SHOW OPTICAL PROPERTIES OF METALS CAN BE TUNED, OPENING NEW ROUTE TO PROGRAMMABLE NANOPHOTONIC DEVICES



- The study demonstrates that metallic materials can be engineered to exhibit controllable optical behaviour at the nanoscale.
- Tunable optical properties enable programmable nanophotonic devices capable of manipulating light with high precision.

- The breakthrough has potential applications in optical communication, quantum technologies, biosensing, imaging, and photonic computing.
- Nanophotonic devices offer faster data processing with lower energy consumption compared to conventional electronic systems.
- The research strengthens the field of advanced materials and nanoscale engineering.
- It supports the development of compact, energy-efficient, and high-performance photonic technologies.
- The innovation contributes to India's growing capabilities in frontier scientific research and advanced manufacturing.
- It has significant implications for future information and communication technologies.

BACKGROUND / CONTEXT

Nanophotonics

- Branch of science that studies the interaction of **light with matter at the nanometre scale**.
- Enables manipulation of light beyond the conventional diffraction limit.

Optical Properties of Metals

- I. Include:
 - A. Reflection.
 - B. Absorption.
 - C. Transmission.
 - D. Scattering.
- II. Determined by the interaction of light with free electrons in metals.

Plasmonics

- Field that studies **surface plasmons**, which are collective oscillations of free electrons at a metal surface.
- Enables strong confinement and control of light at nanoscale dimensions.

Programmable Nanophotonic Devices

- I. Devices whose optical response can be dynamically controlled.



- II. Applications include:
- A. Optical computing.
 - B. Optical switches.
 - C. Sensors.
 - D. High-speed communication.
 - E. Quantum information processing.

KEY HIGHLIGHTS

- **Discovery:** Tunable optical properties of metals.
- **Technology:** Programmable nanophotonic devices.
- **Scientific Significance:** Enables precise control of light at the nanoscale.
- **Applications:** Optical computing, biosensors, quantum technologies, imaging, and telecommunications.
- **Economic Significance:** Supports next-generation semiconductor and photonics industries.
- **Strategic Importance:** Advances frontier research in nanotechnology and advanced materials.
- **Challenges:** Large-scale fabrication, cost, material stability, and device integration.
- **Way Forward:** Promote interdisciplinary research, strengthen nanofabrication infrastructure, encourage industry collaboration, and accelerate commercialization of photonic technologies.

PRELIMS BOOSTER BOX

- **Nanophotonics:** Study of light-matter interaction at the nanometre scale.
- **Nanometre (nm):** One-billionth of a metre (10^{-9} m).
- **Photon:** Fundamental quantum (particle) of light.
- **Plasmon:** Collective oscillation of free electrons in a metal.

- **Surface Plasmon Resonance (SPR):** Resonant interaction between light and surface electrons of a metal.
- **Optical Computing:** Computing using photons instead of electrons for information processing.
- **Metamaterials:** Artificially engineered materials with unique electromagnetic properties.
- **Semiconductor:** Material with electrical conductivity between that of a conductor and an insulator.
- **Quantum Technology:** Technology based on principles of quantum mechanics.
- **Diffraction Limit:** Fundamental limit on the resolution of optical systems due to the wave nature of light.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. Nanophotonics deals with the interaction of light with matter at the nanometre scale.
2. Plasmonics studies the collective oscillation of free electrons at the surface of metals.
3. Optical computing uses photons instead of electrons for processing information.

Which of the statements given above is/are correct?

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

Answer: (d)

5. KAMARAJAR PORT BECOMES INDIA'S SECOND MAJOR PORT WITH 18-METRE DRAFT CAPABILITY, BOOSTING INDIA'S MARITIME COMPETITIVENESS



- The increase in draft depth enables Kamarajar Port to accommodate large container ships and bulk carriers with higher cargo capacity.
- Improved port infrastructure reduces logistics costs, turnaround time, and dependence on transshipment through foreign ports.
- The development enhances India's position in global maritime trade and strengthens supply chain efficiency.
- Greater cargo-handling capability is expected to boost exports, imports, and industrial growth.
- The project supports the Government's vision of modernizing port infrastructure under the maritime development agenda.

- Enhanced port capacity contributes to economic growth, regional connectivity, and employment generation.
- The achievement aligns with India's objective of becoming a global maritime hub.
- It also strengthens the country's blue economy and trade competitiveness.

BACKGROUND / CONTEXT

Kamarajar Port

- Located at **Chennai** (Ennore).
- India's **first corporatized major port**.
- Handles:
 - Coal.
 - Containers.
 - Automobiles.
 - Petroleum products.
 - Bulk cargo.
 - LNG.

Port Draft

- The **draft** is the vertical distance between the waterline and the bottom of a vessel.
- A deeper port draft allows larger ships with greater cargo loads to enter safely.

Major Ports in India

- Governed under the **Major Port Authorities Act, 2021**.
- Play a crucial role in:
 - International trade.
 - Logistics.
 - Industrial development.
 - Coastal shipping.

Maritime Initiatives

- **PM Gati Shakti** – Integrated infrastructure development.
- **Maritime India Vision 2030** – Modernization and expansion of India's maritime sector.
- **Sagarmala Programme** – Port-led development and logistics efficiency.

KEY HIGHLIGHTS

- **Port:** Kamarajar Port.
- **Achievement:** 18-metre draft capability.
- **Strategic Significance:** Enables handling of larger cargo vessels.
- **Economic Impact:** Boosts trade, exports, logistics efficiency, and industrial growth.
- **Infrastructure Impact:** Reduces turnaround time and enhances port productivity.
- **Governance Impact:** Supports port modernization and integrated transport infrastructure.
- **Challenges:** Continuous dredging, environmental sustainability, hinterland connectivity, and capacity expansion.
- **Way Forward:** Strengthen multimodal connectivity, adopt smart port technologies, enhance green port initiatives, and expand cargo-handling infrastructure.

PRELIMS BOOSTER BOX

- **Kamarajar Port:** India's first corporatized major port.
- **Location:** Chennai (Ennore).
- **Draft:** Vertical distance between a ship's waterline and its lowest point (keel).
- **Major Port Authorities Act: 2021.**
- **Sagarmala Programme:** Initiative for port-led development and logistics improvement.
- **Maritime India Vision 2030:** Roadmap for modernization of India's maritime sector.
- **PM Gati Shakti:** National Master Plan for integrated infrastructure development.
- **Transshipment:** Transfer of cargo from one vessel to another at an intermediate port.
- **Bulk Carrier:** Ship designed to transport unpackaged bulk cargo such as coal and ore.
- **Blue Economy:** Sustainable use of ocean resources for economic growth and environmental conservation.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. Kamarajar Port is India's first corporatized major port.
2. A deeper port draft enables larger ships carrying greater cargo loads to enter a port safely.
3. The Major Port Authorities Act was enacted in 2021.

Which of the statements given above is/are correct?

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

Answer: (d)

1. POSHAN TRACKER



- Poshan Tracker is a mobile-based application that provides real-time monitoring of nutrition services delivered through Anganwadi Centres.
- It maintains digital records of beneficiaries, including pregnant women, lactating mothers, children (0–6 years), and adolescent girls (where applicable).
- The platform tracks growth monitoring, supplementary nutrition, home visits, and early childhood care services.
- It enables policymakers to monitor programme implementation, identify nutrition gaps, and improve service delivery.
- The application reduces paperwork and enhances efficiency by digitizing Anganwadi operations.
- Poshan Tracker promotes evidence-based decision-making and accountability in nutrition programmes.
- It supports the goals of **POSHAN Abhiyaan** and **Saksham Anganwadi and POSHAN 2.0** to improve maternal and child nutrition.
- The initiative strengthens India's digital public service delivery in the nutrition sector.

BACKGROUND / CONTEXT

Poshan Tracker

- A mobile-based ICT application for:

- Real-time beneficiary management.
- Growth monitoring.
- Nutrition service delivery.
- Digital record-keeping.
- Monitoring Anganwadi Centres.

Saksham Anganwadi and POSHAN 2.0

- Umbrella scheme of the **Ministry of Women and Child Development (MWCD)**.
- Integrates:
 - Supplementary Nutrition Programme (SNP).
 - POSHAN Abhiyaan.
 - Anganwadi Services.
- Focuses on improving:
 - Maternal nutrition.
 - Child nutrition.
 - Early childhood care and development.

Beneficiaries

- Pregnant women.
- Lactating mothers.
- Children (0–6 years).
- Anganwadi workers.
- Supervisors and programme administrators.

Objectives

- Improve nutrition outcomes.
- Reduce stunting, wasting, and underweight prevalence.
- Strengthen monitoring and transparency.
- Enable timely interventions using real-time data.

KEY HIGHLIGHTS

- **Platform:** Poshan Tracker.
- **Implementing Ministry:** Ministry of Women and Child Development.
- **Purpose:** Digital monitoring of nutrition services and beneficiaries.
- **Coverage:** Anganwadi Centres across India.



- **Governance Impact:** Enhances transparency, accountability, and evidence-based policymaking.
- **Social Significance:** Supports maternal and child health and nutrition.
- **Challenges:** Digital connectivity, device availability, data quality, and capacity building of frontline workers.
- **Way Forward:** Strengthen digital infrastructure, improve training of Anganwadi workers, ensure high-quality data entry, and integrate analytics for better programme planning.

PRELIMS BOOSTER BOX

- **POSHAN: Prime Minister's Overarching Scheme for Holistic Nourishment.**
- **POSHAN Abhiyaan:** Launched in **2018** to improve nutritional outcomes.
- **Saksham Anganwadi and POSHAN 2.0:** Umbrella scheme launched in **2021** by integrating nutrition-related programmes.
- **Ministry:** Ministry of Women and Child Development (MWCD).
- **ICDS: Integrated Child Development Services,** launched in **1975**.
- **Anganwadi Centre (AWC):** Village-level centre delivering nutrition, preschool education, and health services.
- **Growth Monitoring:** Regular measurement of a child's height and weight to assess nutritional status.
- **Stunting:** Low height-for-age due to chronic undernutrition.
- **Wasting:** Low weight-for-height indicating acute undernutrition.
- **Underweight:** Low weight-for-age reflecting chronic and/or acute undernutrition.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. Poshan Tracker is a digital platform for real-time monitoring of nutrition services delivered through Anganwadi Centres.

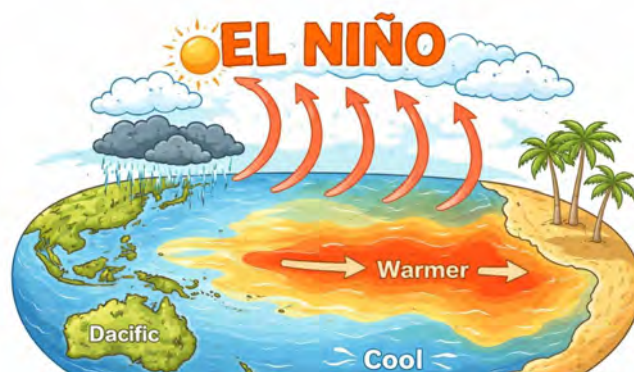
2. POSHAN Abhiyaan was launched in **2018** to improve nutritional outcomes among women and children.
3. Stunting refers to low height-for-age caused primarily by chronic undernutrition.

Which of the statements given above is/are correct?

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

Answer: (d)

2. CENTRE INTENSIFIES PREPAREDNESS AS EL NIÑO THREAT LOOMS; WEEKLY REVIEWS UNDERWAY



- The Government is closely monitoring climatic developments associated with El Niño through regular reviews and coordination among concerned ministries.
- Preparedness measures include monitoring rainfall, reservoir levels, agricultural conditions, and food stock availability.
- El Niño can weaken the Indian summer monsoon, increasing the risk of below-normal rainfall, droughts, and heatwaves.
- Timely planning helps reduce adverse impacts on agriculture, drinking water supply, power generation, and livelihoods.



- Coordination among meteorological agencies, disaster management authorities, and state governments is critical for effective response.
- The initiative reflects India's emphasis on climate resilience and proactive disaster risk reduction.
- Scientific forecasting and early warning systems play a vital role in mitigating climate-related risks.
- Enhanced preparedness strengthens food security, economic stability, and public safety.

BACKGROUND / CONTEXT

El Niño

- A **warm phase of the El Niño–Southern Oscillation (ENSO)**.
- Characterized by **above-normal sea surface temperatures** in the central and eastern equatorial Pacific Ocean.
- Occurs at irregular intervals, typically every **2–7 years**.

ENSO (El Niño–Southern Oscillation)

- I. A coupled ocean–atmosphere phenomenon comprising:
 - A. **El Niño** (warming phase).
 - B. **La Niña** (cooling phase).
 - C. **Neutral** conditions.
- II. Influences global weather and climate patterns.

Impact on India

- I. May lead to:
 - A. Weaker southwest monsoon.
 - B. Reduced rainfall.
 - C. Drought conditions.
 - D. Heatwaves.
 - E. Lower agricultural productivity.
 - F. Water stress.
- II. However, the relationship is **not deterministic**, as other factors such as the **Indian Ocean Dipole** can influence the monsoon.

Preparedness Measures

- Improved weather forecasting.
- Reservoir and water resource management.
- Contingency crop planning.
- Food grain stock monitoring.
- Disaster preparedness and early warning systems.

KEY HIGHLIGHTS

- **Focus:** Preparedness for possible El Niño conditions.
- **Lead Agencies:** Central Government, meteorological agencies, and state governments.
- **Objective:** Minimize impacts on agriculture, water resources, food security, and disaster management.
- **Scientific Significance:** Uses climate forecasting for proactive planning.
- **Economic Significance:** Helps reduce losses in agriculture and allied sectors.
- **Governance Impact:** Promotes coordinated and evidence-based disaster preparedness.
- **Challenges:** Forecast uncertainty, regional variability in rainfall, and climate change.
- **Way Forward:** Strengthen climate forecasting, expand climate-resilient agriculture, improve water conservation, and enhance early warning and community preparedness.

PRELIMS BOOSTER BOX

- **El Niño:** Warm phase of ENSO associated with warming of the central and eastern equatorial Pacific Ocean.
- **La Niña:** Cool phase of ENSO characterized by below-normal sea surface temperatures in the equatorial Pacific.
- **ENSO:** El Niño–Southern Oscillation, a major climate phenomenon influencing global weather.
- **Indian Ocean Dipole (IOD):** Climate phenomenon based on sea surface



temperature differences between the western and eastern Indian Ocean.

- **Southwest Monsoon:** Brings nearly **75%** of India's annual rainfall (June–September).
- **Heatwave:** Prolonged period of abnormally high temperatures.
- **IMD:** India Meteorological Department, the national agency responsible for weather forecasting.
- **Contingency Crop Planning:** Alternate agricultural strategies to cope with adverse weather conditions.
- **Early Warning System:** Mechanism for timely forecasting and dissemination of hazard information.
- **Climate Resilience:** Ability of systems and communities to anticipate, adapt to, and recover from climate-related impacts.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. El Niño is the warm phase of the El Niño–Southern Oscillation (ENSO).
2. El Niño is characterized by above-normal sea surface temperatures in the central and eastern equatorial Pacific Ocean.
3. The **Indian Ocean Dipole (IOD)** can influence the impact of El Niño on the Indian monsoon.

Which of the statements given above is/are correct?

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

Answer: (d)

3. DRDO CONDUCTS SUCCESSFUL FLIGHT-TEST OF PINAKA LONG RANGE GUIDED ROCKET



- The Pinaka Long Range Guided Rocket is an advanced version of the indigenous Pinaka Multi-Barrel Rocket Launcher (MBRL) system.
- It incorporates an indigenous guidance system, enabling high-precision strikes against targets at extended ranges.
- The successful flight test demonstrates improvements in accuracy, reliability, and operational effectiveness.
- The system significantly enhances the Indian Army's long-range firepower and battlefield capabilities.
- Indigenous development reduces dependence on imported weapon systems and strengthens defence self-reliance.
- The programme showcases DRDO's growing expertise in precision-guided munitions and advanced missile technologies.
- The enhanced Pinaka system supports rapid deployment, mobility, and network-centric warfare.
- It contributes to India's objective of building a modern, technologically advanced defence ecosystem.

BACKGROUND / CONTEXT

Pinaka Multi-Barrel Rocket Launcher (MBRL)

- Indigenous artillery rocket system developed by **DRDO**.
- Designed to provide rapid, high-volume fire support.
- Mounted on a high-mobility vehicle for quick deployment.
- Used by the **Indian Army**.

Pinaka Long Range Guided Rocket (LRGR)

- I. Advanced guided version of the Pinaka rocket.
- II. Features:
 - A. Extended strike range.
 - B. Precision guidance.
 - C. Improved accuracy.
 - D. Indigenous navigation and control system.

Defence Research and Development Organisation (DRDO)

- I. Established in **1958**.
- II. Functions under the **Ministry of Defence**.
- III. Responsible for research and development in defence technologies including:
 - A. Missiles.
 - B. Aircraft.
 - C. Electronic warfare.
 - D. Naval systems.
 - E. Armaments.

Aatmanirbhar Bharat in Defence

- I. Focuses on:
 - A. Indigenous defence production.
 - B. Technology development.
 - C. Import substitution.
 - D. Defence exports.
 - E. Strategic autonomy.

KEY HIGHLIGHTS

- **System:** Pinaka Long Range Guided Rocket (LRGR).

- **Developer:** Defence Research and Development Organisation (DRDO).
- **Purpose:** Precision long-range artillery strike capability.
- **Strategic Significance:** Enhances the Indian Army's firepower and operational flexibility.
- **Technological Significance:** Indigenous precision-guidance and extended-range capability.
- **Economic Impact:** Promotes domestic defence manufacturing and reduces import dependence.
- **Challenges:** Continuous technological upgrades, production scaling, and integration with advanced battlefield systems.
- **Way Forward:** Expand indigenous guided munitions, strengthen defence R&D, increase private sector participation, and boost defence exports.

PRELIMS BOOSTER BOX

- **DRDO:** Defence Research and Development Organisation.
- **Established:** 1958.
- **Administrative Ministry:** Ministry of Defence.
- **Pinaka:** Indigenous Multi-Barrel Rocket Launcher (MBRL) system.
- **MBRL:** Weapon system capable of launching multiple rockets in quick succession.
- **Guided Rocket:** Rocket equipped with a guidance system for improved targeting accuracy.
- **Precision-Guided Munition (PGM):** Weapon designed to accurately strike a designated target.
- **Firepower:** Military capability to deliver effective offensive fire against targets.
- **Aatmanirbhar Bharat:** Initiative promoting self-reliance in strategic sectors, including defence.

- **Network-Centric Warfare:** Integration of sensors, communication, and weapons for enhanced battlefield effectiveness.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

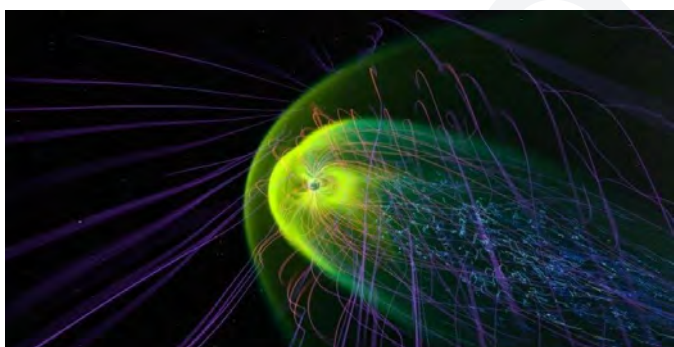
1. The Pinaka Long Range Guided Rocket is an advanced guided version of the indigenous Pinaka Multi-Barrel Rocket Launcher system.
2. The Defence Research and Development Organisation (DRDO) was established in **1958** under the Ministry of Defence.
3. Precision-guided munitions are designed to improve targeting accuracy and reduce collateral damage.

Which of the statements given above is/are correct?

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

Answer: (d)

4. UNRAVELLING THE SECRETS OF NEAR-EARTH SPACE CRITICAL FOR SATELLITE OPERATIONS



- Near-Earth space is a dynamic region influenced by interactions between the Earth's magnetic field, atmosphere, and solar activity.
- Variations in space weather can affect satellite communication, navigation systems, and spacecraft operations.

- Improved understanding of this region enables better forecasting of geomagnetic disturbances and atmospheric changes.
- Accurate space weather prediction enhances the safety, reliability, and lifespan of satellites.
- The research supports advancements in satellite-based communication, remote sensing, and navigation services.
- It also contributes to national capabilities in space science and disaster management.
- Understanding near-Earth space is increasingly important as satellite launches and space-based applications continue to expand.
- The findings strengthen India's scientific research in space technology and atmospheric sciences.

BACKGROUND / CONTEXT

Near-Earth Space

- I. Region extending from the upper atmosphere to the area occupied by Earth-orbiting satellites.
- II. Includes:
 - A. Ionosphere.
 - B. Magnetosphere.
 - C. Low Earth Orbit (LEO).
 - D. Medium Earth Orbit (MEO).
 - E. Geostationary Orbit (GEO).

Space Weather

- I. Conditions in space influenced by:
 - A. Solar flares.
 - B. Coronal Mass Ejections (CMEs).
 - C. Solar wind.
- II. Can disrupt:
 - A. Satellites.
 - B. GPS.
 - C. Radio communication.
 - D. Power grids.

Ionosphere

- Electrically charged layer of the upper atmosphere.
- Reflects and modifies radio waves.
- Plays a crucial role in satellite communication and navigation.

Magnetosphere

- Region dominated by Earth's magnetic field.
- Protects Earth from charged particles emitted by the Sun.

KEY HIGHLIGHTS

- **Focus:** Understanding near-Earth space environment.
- **Scientific Significance:** Improves prediction of space weather and satellite performance.
- **Applications:** Satellite communication, navigation, Earth observation, and disaster management.
- **Strategic Importance:** Strengthens space infrastructure and national security.
- **Economic Impact:** Enhances reliability of satellite-based services supporting multiple sectors.
- **Challenges:** Complex solar-terrestrial interactions, forecasting accuracy, and increasing space congestion.
- **Way Forward:** Expand space weather monitoring, strengthen international collaboration, develop advanced forecasting models, and improve satellite resilience.

PRELIMS BOOSTER BOX

- **Near-Earth Space:** Region extending from the upper atmosphere to Earth-orbiting satellites.
- **Ionosphere:** Electrically charged atmospheric layer extending approximately **60–1,000 km** above Earth.
- **Magnetosphere:** Region dominated by Earth's magnetic field that shields the planet from solar particles.

- **Space Weather:** Environmental conditions in space influenced by solar activity.
- **Solar Wind:** Continuous stream of charged particles emitted by the Sun.
- **Solar Flare:** Sudden burst of electromagnetic radiation from the Sun.
- **Coronal Mass Ejection (CME):** Massive eruption of plasma and magnetic field from the Sun's corona.
- **Low Earth Orbit (LEO):** Approximately **160–2,000 km** above Earth.
- **Geostationary Orbit (GEO):** Approximately **35,786 km** above Earth's equator with a 24-hour orbital period.
- **GPS:** Global Positioning System used for positioning, navigation, and timing.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The ionosphere is an electrically charged layer of the upper atmosphere that influences radio wave propagation.
2. Coronal Mass Ejections (CMEs) originate from the Sun and can affect satellite operations.
3. A geostationary satellite orbits the Earth with the same rotational period as the Earth.

Which of the statements given above is/are correct?

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

Answer: (d)

5. AI INTERVENTION HOLDS PROMISE OF MANIFOLD INCREASE IN INDIA'S AGRICULTURE ECONOMY; AGRI-STARTUPS HOLD THE KEY TO THE FUTURE OF FARMING: DR. JITENDRA SINGH



- AI is enabling data-driven farming through precision agriculture, crop monitoring, weather forecasting, and pest management.
- Agri-startups are developing innovative solutions in farm mechanization, digital advisory services, supply chain management, and agri-finance.
- AI-powered technologies improve productivity, optimize resource use, and reduce input costs for farmers.
- Digital agriculture supports climate-resilient farming by enabling timely decision-making based on real-time data.
- The growth of agri-startups promotes rural entrepreneurship, employment generation, and agricultural modernization.
- AI integration aligns with India's vision of technology-driven, sustainable, and inclusive agricultural development.

- The initiative also strengthens food security and enhances farmers' income through improved efficiency and market access.
- Continued investment in innovation and digital infrastructure is essential for transforming the agricultural sector.

BACKGROUND / CONTEXT

Artificial Intelligence (AI) in Agriculture

- I. Uses machine learning and data analytics for:
 - A. Precision farming.
 - B. Crop health monitoring.
 - C. Yield prediction.
 - D. Pest and disease detection.
 - E. Irrigation management.
 - F. Weather forecasting.

Precision Agriculture

- I. Farm management approach using:
 - A. Sensors.
 - B. Drones.
 - C. Satellite imagery.
 - D. GPS.
 - E. AI-based analytics.
- II. Optimizes the use of water, fertilizers, and pesticides.

Agri-Startups

- I. Innovation-driven enterprises working in:
 - A. Agri-tech.
 - B. Farm mechanization.
 - C. Digital marketplaces.
 - D. Supply chain logistics.
 - E. Financial services.
 - F. Climate-smart agriculture.

Government Support

- **Digital Agriculture Mission.**
- **Agriculture Accelerator Fund.**
- **National Mission on Natural Farming (NMNF).**
- Promotion of agri-innovation through incubation and startup ecosystems.

KEY HIGHLIGHTS

- **Theme:** AI-driven transformation of Indian agriculture.
- **Focus:** Precision farming, innovation, and agri-startups.
- **Economic Significance:** Enhances productivity, farmer income, and agricultural competitiveness.
- **Technological Impact:** Enables real-time decision-making and efficient resource management.
- **Strategic Importance:** Supports food security and climate-resilient agriculture.
- **Governance Impact:** Promotes digital agriculture and innovation-led rural development.
- **Challenges:** Digital divide, affordability, data availability, farmer awareness, and infrastructure gaps.
- **Way Forward:** Expand digital infrastructure, strengthen startup ecosystems, improve AI adoption, enhance farmer training, and promote public-private partnerships in agri-tech.

PRELIMS BOOSTER BOX

- **Artificial Intelligence (AI):** Technology enabling machines to perform tasks requiring human intelligence.
- **Precision Agriculture:** Data-driven farming using digital technologies for efficient resource utilization.
- **Digital Agriculture Mission:** Government initiative to promote technology-enabled agriculture.
- **Agriculture Accelerator Fund:** Supports innovation and startup development in agriculture.
- **Remote Sensing:** Collection of information about crops or land using satellites or drones.
- **GIS (Geographic Information System):** System for capturing and analyzing spatial data.

- **Internet of Things (IoT):** Network of connected devices that collect and exchange data.
- **Drone:** Unmanned aerial vehicle used for crop monitoring, spraying, and mapping.
- **Climate-Smart Agriculture:** Farming practices that improve productivity while enhancing resilience to climate change.
- **Agri-Startup:** Startup providing technology-based solutions for agriculture and allied sectors.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. Precision agriculture uses technologies such as sensors, drones, satellite imagery, and AI to optimize farm management.
2. Remote sensing enables monitoring of crops using satellites or aerial platforms without direct physical contact.
3. Climate-smart agriculture aims to improve agricultural productivity while enhancing resilience to climate change.

Which of the statements given above is/are correct?

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

Answer: (d)

1. SUB-MISSION ON AGRICULTURAL MECHANIZATION (SMAM)



- SMAM is a **Centrally Sponsored Scheme (CSS)** aimed at increasing the adoption of modern agricultural machinery across India.
- It provides financial assistance for the purchase of farm machinery and equipment, with special emphasis on small and marginal farmers.
- The scheme promotes the establishment of **Custom Hiring Centres (CHCs)**, enabling farmers to rent costly machinery at affordable rates.
- Mechanization helps improve farm productivity, reduce labour dependency, and ensure timely agricultural operations.
- SMAM encourages the use of advanced technologies such as precision farming equipment and crop residue management machinery.
- The scheme also supports women farmers, Scheduled Castes (SCs), Scheduled Tribes (STs), and farmers in difficult and hilly regions through higher subsidy provisions.
- It contributes to sustainable agriculture by promoting efficient use of inputs and reducing post-harvest losses.

- SMAM aligns with the Government's objective of modernizing agriculture and enhancing farmers' income.

BACKGROUND / CONTEXT

Sub-Mission on Agricultural Mechanization (SMAM)

- **Launched:** 2014–15.
- **Type:** Centrally Sponsored Scheme (CSS).
- **Nodal Ministry:** Ministry of Agriculture and Farmers Welfare.
- **Objective:** Promote agricultural mechanization and improve access to modern farm machinery.

Major Components

- Financial assistance for agricultural machinery.
- Establishment of **Custom Hiring Centres (CHCs)**.
- Promotion of **High-Tech Hubs** for farm machinery.
- Capacity building, training, and awareness.
- Promotion of crop residue management machinery.

Beneficiaries

- Small and marginal farmers.
- Farmer Producer Organizations (FPOs).
- Self-Help Groups (SHGs).
- Cooperative societies.
- Rural entrepreneurs.

Significance

- Enhances farm productivity.
- Reduces labour shortages.
- Improves operational efficiency.
- Supports sustainable farming.
- Increases farmers' income.

KEY HIGHLIGHTS

- **Scheme:** Sub-Mission on Agricultural Mechanization (SMAM).
- **Launched:** 2014–15.



- **Ministry:** Ministry of Agriculture and Farmers Welfare.
- **Objective:** Increase farm mechanization and improve access to agricultural machinery.
- **Key Feature:** Financial assistance and Custom Hiring Centres (CHCs).
- **Economic Impact:** Higher productivity, lower cultivation costs, and improved farm profitability.
- **Environmental Impact:** Promotes crop residue management and efficient resource use.
- **Challenges:** High machinery costs, fragmented landholdings, limited awareness, and maintenance issues.
- **Way Forward:** Expand CHCs, strengthen training programmes, promote precision agriculture, encourage indigenous farm machinery manufacturing, and integrate digital technologies into mechanization services.

PRELIMS BOOSTER BOX

- **SMAM:** Sub-Mission on Agricultural Mechanization.
- **Launch Year:** 2014–15.
- **Type:** Centrally Sponsored Scheme (CSS).
- **Nodal Ministry:** Ministry of Agriculture and Farmers Welfare.
- **Custom Hiring Centre (CHC):** Facility where farmers can rent agricultural machinery instead of purchasing it.
- **Farm Mechanization:** Use of machinery to perform agricultural operations efficiently.
- **Precision Agriculture:** Technology-based farming using GPS, sensors, drones, and data analytics.
- **Crop Residue Management (CRM):** Scientific management of crop residues to prevent stubble burning and improve soil health.
- **Farmer Producer Organization (FPO):** Collective of farmers formed to improve market access and bargaining power.

- **Small and Marginal Farmers:** Farmers owning **less than 2 hectares** of cultivable land (as per the Agriculture Census classification).

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The Sub-Mission on Agricultural Mechanization (SMAM) was launched in **2014–15** as a Centrally Sponsored Scheme.
2. Custom Hiring Centres (CHCs) enable farmers to access agricultural machinery on a rental basis.
3. Crop Residue Management (CRM) under SMAM promotes scientific management of crop residues to reduce stubble burning.

Which of the statements given above is/are correct?

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

Answer: (d)

2. PRIME MINISTER ADDRESSES THE INDIAN DIASPORA IN AUSTRALIA



- The Prime Minister appreciated the Indian diaspora for acting as a bridge between India and Australia.
- The address highlighted the rapid expansion of cooperation in trade, education, critical minerals, clean energy, technology, defence, and maritime security.



- The Indian community in Australia was recognized for its significant contribution to Australia's economy, multicultural society, and India–Australia relations.
- The Prime Minister underscored India's economic growth, digital transformation, and global leadership as opportunities for greater collaboration.
- The event reinforced people-to-people ties, cultural diplomacy, and mutual trust between the two countries.
- Engagement with the diaspora supports investment, innovation, tourism, and educational exchanges.
- The address reflects India's broader strategy of leveraging its global diaspora to enhance international partnerships.
- Strong India–Australia relations contribute to peace, stability, and prosperity in the Indo-Pacific region.

BACKGROUND / CONTEXT

Indian Diaspora

- I. Refers to:
 - A. **Non-Resident Indians (NRIs).**
 - B. **Overseas Citizens of India (OCIs).**
 - C. Persons of Indian Origin (PIOs) (now merged into the OCI scheme).
- II. One of the largest diaspora communities in the world.
- III. Contributes through:
 - A. Investments.
 - B. Remittances.
 - C. Technology transfer.
 - D. Entrepreneurship.
 - E. Cultural diplomacy.

India–Australia Relations

- I. Elevated to a **Comprehensive Strategic Partnership (CSP)** in 2020.
- II. Major areas of cooperation:
 - A. Trade and investment.

- B. Defence and maritime security.
- C. Education and research.
- D. Critical minerals.
- E. Renewable energy.
- F. Science and technology.
- G. Cybersecurity.

Economic Cooperation

- **Economic Cooperation and Trade Agreement (ECTA)** entered into force in **2022**, reducing tariffs and expanding market access.
- Both countries are working toward a broader **Comprehensive Economic Cooperation Agreement (CECA)**.

Strategic Importance

- I. Both nations are members of the:
 - A. **Quad** (India, Australia, Japan, and the United States).
 - B. **Indian Ocean Rim Association (IORA).**
 - C. **East Asia Summit (EAS).**

KEY HIGHLIGHTS

- **Event:** Prime Minister's address to the Indian diaspora in Australia.
- **Focus:** Strengthening India–Australia ties and diaspora engagement.
- **Strategic Significance:** Reinforces cooperation in the Indo-Pacific and global governance.
- **Economic Significance:** Promotes trade, investment, education, and innovation partnerships.
- **Diplomatic Impact:** Enhances people-to-people and cultural relations.
- **Diaspora Role:** Acts as a bridge for economic, cultural, and technological collaboration.
- **Challenges:** Expanding trade, ensuring skilled workforce mobility, and strengthening supply chain resilience.
- **Way Forward:** Deepen economic integration, finalize CECA, expand educational and research collaboration, strengthen defence



cooperation, and leverage the Indian diaspora for innovation and investment.

PRELIMS BOOSTER BOX

- **Comprehensive Strategic Partnership (CSP):** India–Australia partnership established in **2020**.
- **ECTA: India–Australia Economic Cooperation and Trade Agreement**, effective from **2022**.
- **CECA:** Comprehensive Economic Cooperation Agreement (under negotiation).
- **Quad Members:** India, Australia, Japan, and the United States.
- **IORA:** Indian Ocean Rim Association, promoting regional cooperation in the Indian Ocean.
- **NRI (Non-Resident Indian):** Indian citizen residing outside India.
- **OCI (Overseas Citizen of India):** Foreign citizen of Indian origin eligible for specified lifelong visa and other benefits (not dual citizenship).
- **Remittances:** Money sent by migrants to their home country.
- **Critical Minerals:** Minerals such as lithium, cobalt, nickel, and rare earth elements essential for clean energy and advanced technologies.
- **Indo-Pacific:** Strategic region spanning the Indian and Pacific Oceans, central to global trade and security.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. India and Australia elevated their relationship to a **Comprehensive Strategic Partnership** in **2020**.
2. The **India–Australia Economic Cooperation and Trade Agreement (ECTA)** came into force in **2022**.
3. India and Australia are both members of the **Quad** and the **Indian Ocean Rim Association (IORA)**.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

Answer: (d)

3. NMCG'S FOCUS ON NATURE-BASED SOLUTIONS (NbS): INITIATION OF TWO PILOT PROJECTS AND TRAINING PROGRAMMES



- NMCG has launched pilot projects to demonstrate the effectiveness of Nature-based Solutions in river conservation and watershed management.
- The initiative includes training programmes for officials and stakeholders to promote the adoption of NbS in river restoration projects.
- Nature-based Solutions use natural ecosystems such as wetlands, forests, floodplains, and vegetation to address environmental challenges.
- NbS can improve water quality, reduce flood risks, enhance groundwater recharge, and conserve biodiversity.
- The projects contribute to climate change adaptation while supporting sustainable livelihoods and ecosystem restoration.
- Capacity building will facilitate wider adoption of ecosystem-based approaches in river basin management.
- The initiative strengthens integrated and sustainable management of the Ganga basin.

- It aligns with India's commitments on climate action, biodiversity conservation, and sustainable development.

BACKGROUND / CONTEXT

National Mission for Clean Ganga (NMCG)

- **Established:** 2011.
- **Ministry:** Ministry of Jal Shakti.
- **Role:** Implementation arm of the **Namami Gange Programme**.
- **Objective:** Conservation, rejuvenation, and sustainable management of the **Ganga River** and its tributaries.

Nature-based Solutions (NbS)

- I. Actions that **protect, sustainably manage, and restore natural or modified ecosystems** to address societal challenges while benefiting biodiversity and human well-being.
- II. Examples:
 - A. Wetland restoration.
 - B. Afforestation.
 - C. Riverbank stabilization using vegetation.
 - D. Floodplain restoration.
 - E. Urban green infrastructure.

Benefits of NbS

- Improves water quality.
- Enhances groundwater recharge.
- Reduces soil erosion.
- Mitigates floods.
- Conserves biodiversity.
- Sequesters carbon.
- Builds climate resilience.

Namami Gange Programme

- I. Flagship programme launched in **2014**.
- II. Focuses on:
 - A. Pollution abatement.
 - B. River surface cleaning.
 - C. Sewerage infrastructure.
 - D. Biodiversity conservation.

- E. Afforestation.
- F. Public participation.

KEY HIGHLIGHTS

- **Initiative:** Nature-based Solutions (NbS) pilot projects and training programmes.
- **Implementing Agency:** National Mission for Clean Ganga (NMCG).
- **Objective:** Promote ecosystem-based river rejuvenation and climate resilience.
- **Focus Areas:** Wetlands, riverbanks, floodplains, watershed management, and biodiversity.
- **Environmental Significance:** Improves ecosystem health and water resource sustainability.
- **Climate Significance:** Supports climate adaptation and carbon sequestration.
- **Challenges:** Scaling up NbS, inter-agency coordination, community participation, and long-term monitoring.
- **Way Forward:** Integrate NbS into river basin planning, strengthen scientific research, enhance local community involvement, and replicate successful pilot projects across river basins.

PRELIMS BOOSTER BOX

- **NMCG:** National Mission for Clean Ganga.
- **Established:** 2011.
- **Administrative Ministry:** Ministry of Jal Shakti.
- **Namami Gange Programme:** Launched in **2014** for the conservation and rejuvenation of the Ganga.
- **Nature-based Solutions (NbS):** Actions that protect, restore, and sustainably manage ecosystems to address societal and environmental challenges.
- **Wetlands:** Ecosystems permanently or seasonally saturated with water, acting as natural water filters and flood buffers.
- **Floodplain:** Flat land adjacent to a river that stores excess floodwater during high flows.



- **Riparian Zone:** Vegetated area along the banks of rivers and streams that stabilizes banks and supports biodiversity.
- **Groundwater Recharge:** Process by which water percolates into aquifers.
- **Carbon Sequestration:** Capture and long-term storage of atmospheric carbon dioxide by ecosystems such as forests and wetlands.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The National Mission for Clean Ganga (NMCG) is the implementing arm of the **Namami Gange Programme**.
2. Nature-based Solutions (NbS) involve protecting, restoring, and sustainably managing ecosystems to address environmental and societal challenges.
3. Wetland restoration can improve water quality, reduce flood risks, and enhance biodiversity.

Which of the statements given above is/are correct?

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

Answer: (d)

4. STANDING COMMITTEE OF NATIONAL BOARD FOR WILDLIFE REVIEWS KEY CONSERVATION INITIATIVES AND CONSIDERS OVER 100 DEVELOPMENT PROJECTS IN ITS 91st MEETING



- The Standing Committee assessed the progress of major wildlife conservation programmes across the country.
- It examined more than 100 proposals involving infrastructure and development activities affecting protected areas and eco-sensitive landscapes.
- The Committee emphasized minimizing ecological impacts through appropriate mitigation and wildlife management measures.
- Deliberations focused on safeguarding biodiversity while facilitating essential infrastructure projects.
- The meeting reaffirmed the importance of scientific decision-making and inter-agency coordination in wildlife governance.
- Wildlife clearances ensure that development projects comply with environmental safeguards under existing laws.



- The Committee also reviewed measures for habitat conservation, wildlife corridors, and species protection.
- The proceedings reflect India's commitment to achieving sustainable development while conserving biodiversity.

BACKGROUND / CONTEXT

National Board for Wildlife (NBWL)

- Statutory body** constituted under the **Wild Life (Protection) Act, 1972**.
- Chairperson:** Prime Minister of India.
- Advises the Central Government on:
 - Wildlife conservation.
 - Protected area management.
 - Policies relating to biodiversity protection.
 - Projects affecting wildlife habitats.

Standing Committee of NBWL

- Examines proposals requiring wildlife clearance.
- Reviews:
 - Diversion of forest land within protected areas.
 - Projects in Eco-Sensitive Zones (ESZs).
 - Conservation initiatives.
- Makes recommendations to the Central Government.

Protected Areas in India

- Include:
 - National Parks.
 - Wildlife Sanctuaries.
 - Conservation Reserves.
 - Community Reserves.

Wildlife Clearance

- Required for projects likely to impact protected areas or critical wildlife habitats.
- Aims to balance development needs with biodiversity conservation.

KEY HIGHLIGHTS

- **Meeting:** 91st Standing Committee of the National Board for Wildlife.
- **Objective:** Review conservation initiatives and examine development project proposals.
- **Focus Areas:** Wildlife conservation, habitat protection, infrastructure projects, and mitigation measures.
- **Environmental Significance:** Strengthens biodiversity conservation and sustainable development.
- **Governance Impact:** Promotes scientific appraisal and regulatory oversight.
- **Strategic Importance:** Supports conservation of protected areas and wildlife corridors.
- **Challenges:** Habitat fragmentation, human-wildlife conflict, infrastructure expansion, and climate change.
- **Way Forward:** Strengthen landscape-level planning, protect wildlife corridors, improve ecological impact assessments, enhance community participation, and adopt science-based conservation strategies.

PRELIMS BOOSTER BOX

- **National Board for Wildlife (NBWL):** Statutory body under the **Wild Life (Protection) Act, 1972**.
- **Chairperson of NBWL:** Prime Minister of India.
- **Wild Life (Protection) Act:** Enacted in **1972** (substantially amended in **2022**).
- **Protected Areas:** National Parks, Wildlife Sanctuaries, Conservation Reserves, and Community Reserves.
- **Eco-Sensitive Zone (ESZ):** Buffer area around protected areas to regulate activities harmful to wildlife.
- **Wildlife Corridor:** Natural route connecting habitats, enabling movement of wild animals.
- **Habitat Fragmentation:** Division of continuous habitats into smaller isolated patches due to human activities.



- **Environmental Impact Assessment (EIA):** Process to assess likely environmental impacts of proposed projects before approval.
- **National Park:** Protected area with strict conservation measures; activities such as grazing and private rights are generally prohibited.
- **Wildlife Sanctuary:** Protected area where certain regulated human activities may be permitted without compromising wildlife conservation.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **National Board for Wildlife (NBWL)** is a statutory body constituted under the **Wild Life (Protection) Act, 1972**.
2. The **Prime Minister of India** is the Chairperson of the National Board for Wildlife.
3. Eco-Sensitive Zones (ESZs) are notified around protected areas to regulate activities that may adversely affect wildlife and ecosystems.

Which of the statements given above is/are correct?

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

Answer: (d)

5. MINISTRY OF YOUTH AFFAIRS & SPORTS DIRECTS ALL RECOGNISED NSFs FOR OLYMPIC SPORTS TO PUBLISH LOS ANGELES 2028 OLYMPIC QUALIFICATION AND ATHLETE SELECTION PATHWAY BY 15 JULY



- All recognized Olympic NSFs have been instructed to publicly disclose a detailed roadmap for athlete qualification and selection for the **LA 2028 Olympics**.
- The pathway is expected to clearly specify qualification criteria, selection procedures, performance benchmarks, timelines, and grievance redressal mechanisms.
- The initiative seeks to provide athletes with clarity regarding eligibility and selection well in advance of the Olympic cycle.
- Transparent selection processes are expected to reduce disputes and improve confidence among athletes and stakeholders.
- The directive complements the Government's emphasis on scientific training, long-term planning, and good governance in sports administration.
- It aligns with India's objective of improving its Olympic performance through systematic preparation.
- The measure also promotes accountability among National Sports Federations.

- The initiative reflects India's broader vision of building a high-performance, athlete-centric sporting ecosystem.

BACKGROUND / CONTEXT

National Sports Federations (NSFs)

- Apex bodies recognized by the **Ministry of Youth Affairs & Sports** for the governance of individual sports in India.
- Responsible for:
 - Athlete selection.
 - National championships.
 - Coaching and training.
 - International representation.
 - Talent development.

Los Angeles 2028 Olympics

- Officially the **Games of the XXXIV Olympiad**.
- Scheduled to be held in **Los Angeles, United States**, in **2028**.
- India aims to significantly improve its medal tally through long-term athlete development.

Athlete Selection Pathway

A transparent roadmap generally includes:

- Qualification standards.
- Performance benchmarks.
- Selection trials.
- Ranking criteria.
- International exposure requirements.
- Appeals and grievance redressal process.

Government Initiatives Supporting Olympic Preparation

- **Khelo India Scheme**.
- **Target Olympic Podium Scheme (TOPS)**.
- **National Sports Governance Act, 2025**.
- Enhanced use of sports science, analytics, nutrition, and high-performance coaching.

KEY HIGHLIGHTS

- **Directive:** Publish LA 2028 qualification and athlete selection pathway by **15 July**.

- **Issued By:** Ministry of Youth Affairs & Sports.
- **Applies To:** Recognized National Sports Federations for Olympic sports.
- **Objective:** Ensure transparency, fairness, and athlete-centric governance.
- **Strategic Significance:** Strengthens India's long-term Olympic preparations.
- **Governance Impact:** Promotes accountability, uniformity, and reduced litigation in athlete selection.
- **Challenges:** Ensuring uniform implementation across federations, maintaining objective criteria, and timely updates based on international qualification rules.
- **Way Forward:** Adopt digital selection systems, strengthen sports science support, regularly review selection criteria, and ensure independent grievance redressal mechanisms.

PRELIMS BOOSTER BOX

- **NSF:** National Sports Federation.
- **Recognition:** Granted by the Ministry of Youth Affairs & Sports.
- **TOPS: Target Olympic Podium Scheme**, launched in **2014** to support elite athletes preparing for the Olympic and Paralympic Games.
- **Khelo India:** Flagship programme to promote grassroots sports and identify sporting talent.
- **Sports Authority of India (SAI):** Apex body under the Ministry of Youth Affairs & Sports responsible for sports development and athlete training.
- **National Sports Governance Act, 2025:** Framework to improve governance, transparency, and accountability in sports bodies.
- **Olympic Cycle:** Four-year period between two editions of the Olympic Games.
- **High-Performance Training:** Scientific approach incorporating sports medicine,



biomechanics, nutrition, psychology, and data analytics.

- **Selection Trials:** Competitions organized by NSFs to identify athletes for international events.
- **Grievance Redressal:** Mechanism to address complaints related to athlete selection and governance.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. National Sports Federations (NSFs) are recognized by the Ministry of Youth Affairs & Sports to govern individual sports in India.
2. The **Target Olympic Podium Scheme (TOPS)** was launched to provide comprehensive support to elite athletes preparing for major international competitions.
3. Publishing athlete qualification and selection pathways in advance promotes transparency and reduces disputes in sports governance.

Which of the statements given above is/are correct?

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

Answer: (d)

1. MINISTRY OF COAL NOTIFIES SECL'S FLAGSHIP CSR INITIATIVE 'SECL KE SUSHRUT' IN THE GAZETTE OF INDIA



- V. Earlier, the scheme became the **first Coal PSU CSR initiative** to be listed on the **Direct Benefit Transfer (DBT) Portal**.
- VI. The programme contributes to improving educational opportunities for students from mining communities while strengthening India's future healthcare workforce.

BACKGROUND / CONTEXT

South Eastern Coalfields Limited (SECL)

- A **Miniratna Public Sector Undertaking (PSU)**.
- Largest coal-producing subsidiary of **Coal India Limited**.
- Headquarters: **Bilaspur**.
- It operates mainly in **Chhattisgarh** and **Madhya Pradesh**.

SECL Ke Sushrut

- I. Launched in **2023** as SECL's flagship **Corporate Social Responsibility (CSR)** initiative.
- II. Objective:
 - A. Provide free residential NEET coaching.
 - B. Support meritorious students from mining-affected communities.
 - C. Increase access to medical education.

Corporate Social Responsibility (CSR)

- Governed by **Section 135 of the Companies Act, 2013**.
- Mandates eligible companies to spend **at least 2% of their average net profits of the previous three financial years** on CSR activities.

KEY HIGHLIGHTS

- **Initiative:** SECL Ke Sushrut.
- **Implementing Agency:** South Eastern Coalfields Limited (SECL).
- **Administrative Ministry:** Ministry of Coal.
- **Major Achievement:** First Coal PSU CSR scheme notified in the Gazette of India.
- **Target Group:** Meritorious students from coal mining communities preparing for NEET.

- I. **SECL Ke Sushrut**, launched in **2023**, provides **free residential NEET coaching** to meritorious students from SECL's operational areas in Chhattisgarh and Madhya Pradesh.
- II. The Gazette notification has been issued under the **Aadhaar (Targeted Delivery of Financial and Other Subsidies, Benefits and Services) Act, 2016** and the **Aadhaar Authentication for Good Governance (Social Welfare, Innovation and Knowledge) Rules, 2020**.
- III. Beneficiaries may voluntarily authenticate through Aadhaar, while alternative government-approved identity documents remain available for those who do not use Aadhaar.
- IV. The initiative has recorded impressive outcomes:
 - A. **First Batch (2023–24):** 39 of 40 students qualified NEET.
 - B. **Second Batch (2024–25):** 31 of 40 students qualified NEET, securing admissions to MBBS, BDS, BAMS and other health science programmes.



- **Governance Significance:** Promotes transparent, technology-enabled, and targeted delivery of benefits through voluntary Aadhaar authentication.
- **Social Impact:** Expands access to quality coaching, promotes educational equity, and strengthens the future healthcare workforce.
- **Way Forward:** Scale similar CSR initiatives across PSUs, strengthen digital governance, and expand educational support for underserved communities.

PRELIMS BOOSTER BOX

- **SECL:** South Eastern Coalfields Limited.
- **Parent Company:** Coal India Limited.
- **Headquarters:** Bilaspur.
- **CSR:** Corporate Social Responsibility under **Section 135 of the Companies Act, 2013.**
- **CSR Spending Norm:** Minimum **2%** of the average net profits of the preceding three financial years for eligible companies.
- **NEET:** National Eligibility cum Entrance Test for admission to undergraduate medical courses.
- **DBT (Direct Benefit Transfer):** Mechanism for direct transfer of government benefits to beneficiaries, reducing leakages and improving transparency.
- **Aadhaar Act, 2016:** Provides the legal framework for Aadhaar-based identification and authentication for delivery of subsidies, benefits, and services.
- **Gazette Notification:** Official publication giving legal effect to government notifications, rules, and orders.
- **Miniratna PSU:** Category of Central Public Sector Enterprises granted enhanced financial and operational autonomy based on performance.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. **SECL Ke Sushrut** provides free residential coaching for the NEET examination to meritorious students from coal mining areas.
2. Corporate Social Responsibility (CSR) provisions in India are governed by **Section 135 of the Companies Act, 2013.**
3. The Direct Benefit Transfer (DBT) system aims to improve transparency by transferring benefits directly to eligible beneficiaries.

Which of the statements given above is/are correct?

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

Answer: (d)

2. INDIA STANDS AS PRIMARY GUARANTOR OF PEACE & STABILITY IN THE INDIAN OCEAN REGION: RAKSHA MANTRI LAUDS INDIAN NAVY FOR SAFEGUARDING MARITIME INTERESTS



- The Raksha Mantri emphasized the Indian Navy's contribution to maintaining peace, stability, and a rules-based maritime order in the Indian Ocean Region.
- The Navy plays a crucial role in protecting India's maritime boundaries, trade routes,



offshore assets, and Exclusive Economic Zone (EEZ).

- India continues to undertake anti-piracy patrols, maritime surveillance, search and rescue (SAR), and humanitarian assistance and disaster relief (HADR) operations.
- The Navy also supports regional capacity-building through joint exercises, training, and maritime cooperation with friendly countries.
- India's maritime strategy aligns with the vision of **SAGAR (Security and Growth for All in the Region)**, promoting inclusive and cooperative maritime security.
- The statement reflects India's commitment to ensuring a free, open, inclusive, and rules-based Indo-Pacific.
- Strengthening indigenous naval capabilities under **Aatmanirbhar Bharat** remains a key priority.
- The Indian Navy continues to enhance maritime domain awareness and regional cooperation to address emerging security challenges.

BACKGROUND / CONTEXT

Indian Ocean Region (IOR)

- Extends from the eastern coast of Africa to Australia.
- Home to some of the world's busiest sea lanes carrying a significant share of global trade and energy supplies.
- Holds immense strategic importance due to its chokepoints and maritime connectivity.

Indian Navy

- I. Maritime branch of the **Indian Armed Forces**.
- II. Responsible for:
 - A. Maritime security.
 - B. Coastal defence.
 - C. Protection of Sea Lines of Communication (SLOCs).

- D. Humanitarian Assistance and Disaster Relief (HADR).
- E. Anti-piracy operations.
- F. Maritime diplomacy.

SAGAR

- I. **Security and Growth for All in the Region.**
- II. Announced in **2015**.
- III. India's maritime vision promoting:
 - A. Regional cooperation.
 - B. Maritime security.
 - C. Sustainable development.
 - D. Capacity building.
 - E. Collective response to maritime challenges.

Maritime Security Challenges

- Piracy.
- Maritime terrorism.
- Illegal fishing.
- Smuggling.
- Trafficking.
- Natural disasters.
- Strategic competition in the Indo-Pacific.

KEY HIGHLIGHTS

- **Theme:** India's role in ensuring peace and stability in the Indian Ocean Region.
- **Lead Institution:** Indian Navy.
- **Strategic Vision:** SAGAR (Security and Growth for All in the Region).
- **Strategic Significance:** Protects India's maritime interests and promotes regional stability.
- **Economic Significance:** Secures vital sea trade routes and energy supplies.
- **Diplomatic Impact:** Strengthens defence partnerships and maritime cooperation.
- **Challenges:** Piracy, maritime terrorism, illegal activities at sea, climate-related disasters, and geopolitical competition.



- **Way Forward:** Enhance indigenous naval capabilities, strengthen maritime domain awareness, deepen cooperation with IOR partners, expand blue economy initiatives, and promote a rules-based Indo-Pacific.

PRELIMS BOOSTER BOX

- **Indian Ocean Region (IOR):** Strategically important maritime region connecting Asia, Africa, and Australia.
- **SAGAR: Security and Growth for All in the Region,** India's maritime vision launched in 2015.
- **Sea Lines of Communication (SLOCs):** Major maritime routes used for international trade and naval movement.
- **Exclusive Economic Zone (EEZ):** Maritime zone extending up to **200 nautical miles** from a coastal state's baseline, where it has sovereign rights over natural resources under the **United Nations Convention on the Law of the Sea (UNCLOS)**.
- **UNCLOS:** International treaty governing the rights and responsibilities of states in the use of oceans.
- **HADR:** Humanitarian Assistance and Disaster Relief operations.
- **Maritime Domain Awareness (MDA):** Effective understanding of activities in the maritime domain affecting security, safety, economy, or environment.
- **Indo-Pacific:** Strategic region spanning the Indian and Pacific Oceans.
- **Blue Economy:** Sustainable use of ocean resources for economic growth while preserving marine ecosystems.
- **Anti-Piracy Operations:** Naval operations to prevent and respond to piracy at sea.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. **SAGAR** stands for **Security and Growth for All in the Region**.

2. An **Exclusive Economic Zone (EEZ)** extends up to **200 nautical miles** from a coastal state's baseline under UNCLOS.
3. **Sea Lines of Communication (SLOCs)** are strategically important maritime routes used for global trade and naval movement.

Which of the statements given above is/are correct?

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

Answer: (d)

3. DEPARTMENT OF POSTS AND TRAI JOIN HANDS TO CONDUCT INDIA'S LARGEST VILLAGE-LEVEL TELECOM NETWORK PERFORMANCE SURVEY



- The survey will collect village-level data on telecom network availability, call quality, mobile broadband performance, and service reliability.
- Leveraging the extensive reach of the **Department of Posts**, the exercise will cover remote and underserved regions across the country.



- The findings will help identify areas with poor connectivity and support targeted improvements in telecom infrastructure.
- The initiative will aid policymakers in enhancing digital inclusion, especially in rural and aspirational districts.
- Better telecom connectivity will improve access to digital public services, education, healthcare, financial inclusion, and e-governance.
- The survey also supports the expansion of 4G and 5G networks and strengthens India's digital ecosystem.
- It demonstrates inter-departmental collaboration for data-driven decision-making in the telecom sector.
- The exercise contributes to bridging the urban-rural digital divide.

BACKGROUND / CONTEXT

Telecom Regulatory Authority of India (TRAI)

- I. Established under the **Telecom Regulatory Authority of India Act, 1997**.
- II. Functions:
 - A. Regulates telecom services.
 - B. Protects consumer interests.
 - C. Promotes fair competition.
 - D. Ensures quality of telecom services.

Department of Posts (DoP)

- Functions under the **Ministry of Communications**.
- One of the world's largest postal networks with extensive rural outreach.
- Increasingly supports digital governance, financial inclusion, and citizen-centric services.

Digital India

- I. Launched in **2015**.
- II. Aims to:
 - A. Provide digital infrastructure as a core utility.

- B. Deliver governance and services digitally.
- C. Promote digital empowerment of citizens.

Importance of Telecom Connectivity

- I. Supports:
 - A. Digital payments.
 - B. Online education.
 - C. Telemedicine.
 - D. E-commerce.
 - E. Disaster communication.
 - F. Digital public infrastructure.

KEY HIGHLIGHTS

- **Initiative:** Village-level telecom network performance survey.
- **Implementing Agencies:** Department of Posts and TRAI.
- **Objective:** Assess telecom service quality and identify connectivity gaps.
- **Coverage:** Villages across India, including remote and underserved areas.
- **Strategic Significance:** Supports universal digital connectivity and rural digital inclusion.
- **Economic Significance:** Improves access to digital markets, financial services, and employment opportunities.
- **Governance Impact:** Enables evidence-based telecom planning and better service delivery.
- **Challenges:** Difficult terrain, infrastructure gaps, and ensuring accurate real-time data collection.
- **Way Forward:** Expand broadband infrastructure, accelerate 4G/5G rollout, strengthen BharatNet, and use survey findings to prioritize connectivity in underserved regions.

PRELIMS BOOSTER BOX

- **TRAI:** Telecom Regulatory Authority of India.
- **Established:** **1997** under the **TRAI Act, 1997**.
- **Administrative Ministry (for DoP):** Ministry of Communications.



- **Department of Posts:** Operates one of the world's largest postal networks with extensive rural coverage.
- **Digital India:** Flagship programme launched in **2015** to transform India into a digitally empowered society and knowledge economy.
- **BharatNet:** Government project to provide broadband connectivity to **Gram Panchayats** across India.
- **4G:** Fourth-generation mobile communication technology offering high-speed internet.
- **5G:** Fifth-generation mobile technology enabling ultra-low latency, high-speed communication, and massive device connectivity.
- **Digital Divide:** Gap between individuals or regions with and without access to digital technologies.
- **Quality of Service (QoS):** Performance standards relating to reliability, speed, availability, and user experience of telecom services.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **Telecom Regulatory Authority of India (TRAI)** was established under the **TRAI Act, 1997**.
2. **BharatNet** aims to provide broadband connectivity to Gram Panchayats across India.
3. Bridging the digital divide can improve access to e-governance, education, healthcare, and financial services.

Which of the statements given above is/are correct?

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

Answer: (d)

4. FIU-IND CASE ON LARGE-SCALE CYBER FRAUD RECOGNISED AS RUNNER-UP AT THE BEST EGMONT CASE AWARD (BECA) 2026



- FIU-IND's investigation into a major cyber fraud case received international recognition for excellence in financial intelligence analysis and cross-border cooperation.
- The award acknowledges the effective use of financial intelligence in detecting, tracing, and disrupting illicit financial flows linked to cybercrime.
- The case demonstrated successful collaboration with domestic law enforcement agencies and international Financial Intelligence Units (FIUs).
- The recognition enhances India's credibility in global efforts against money laundering, terrorist financing, and cyber-enabled financial crimes.
- It reflects the increasing importance of international information sharing in tackling transnational financial offences.
- The achievement strengthens India's role within the Egmont Group and global anti-money laundering (AML) architecture.
- The case underscores the integration of technology, financial analytics, and



inter-agency coordination in combating cyber fraud.

- It also reinforces India's commitment to maintaining the integrity of the financial system.

BACKGROUND / CONTEXT

Financial Intelligence Unit – India (FIU-IND)

- I. Established in **2004**.
- II. Functions under the **Department of Revenue, Ministry of Finance**.
- III. National agency responsible for:
 - A. Receiving financial transaction reports.
 - B. Analysing suspicious financial activities.
 - C. Disseminating financial intelligence to enforcement agencies.
 - D. Supporting efforts against money laundering and terrorist financing.

Egmont Group

- I. Global network of **Financial Intelligence Units (FIUs)**.
- II. Established in **1995**.
- III. Facilitates:
 - A. Secure exchange of financial intelligence.
 - B. International cooperation.
 - C. Capacity building.
 - D. Best practices in combating money laundering and terrorist financing.

Best Egmont Case Award (BECA)

- Annual recognition presented by the Egmont Group.
- Honors outstanding cases demonstrating effective use of financial intelligence and international collaboration.

Legal Framework in India

- **Prevention of Money Laundering Act (PMLA), 2002.**

- FIU-IND acts as the central national agency for AML/CFT (Anti-Money Laundering/Combating the Financing of Terrorism) efforts.

KEY HIGHLIGHTS

- **Recognition:** Runner-up at the Best Egmont Case Award (BECA) 2026.
- **Awarded Agency:** Financial Intelligence Unit – India (FIU-IND).
- **Event:** Egmont Group Plenary, Baku, Azerbaijan.
- **Case:** Large-scale cyber fraud investigation.
- **Strategic Significance:** Strengthens India's international standing in combating financial crimes.
- **Governance Impact:** Enhances financial transparency, regulatory enforcement, and inter-agency cooperation.
- **Technological Significance:** Demonstrates effective use of financial intelligence and data analytics in cybercrime investigations.
- **Way Forward:** Strengthen cross-border intelligence sharing, enhance cyber forensic capabilities, leverage AI for financial crime detection, and improve AML/CFT compliance.

PRELIMS BOOSTER BOX

- **FIU-IND:** Financial Intelligence Unit – India.
- **Established:** 2004.
- **Administrative Ministry:** Department of Revenue, Ministry of Finance.
- **Primary Function:** Collection, analysis, and dissemination of financial intelligence relating to suspicious financial transactions.
- **Egmont Group:** International network of Financial Intelligence Units established in 1995.
- **PMLA, 2002:** Prevention of Money Laundering Act, the principal legislation to combat money laundering in India.
- **Money Laundering:** Process of disguising the illicit origin of illegally obtained funds.
- **AML/CFT:** Anti-Money Laundering and Combating the Financing of Terrorism.



- **Suspicious Transaction Report (STR):** Report submitted by reporting entities to FIU-IND regarding transactions suspected to involve money laundering or other financial crimes.
- **Cyber Fraud:** Financial fraud committed using digital platforms, computer systems, or communication networks.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. **FIU-IND** functions under the **Department of Revenue, Ministry of Finance**.
2. The **Egmont Group** is an international network of Financial Intelligence Units that promotes cooperation in combating money laundering and terrorist financing.
3. The **Prevention of Money Laundering Act (PMLA), 2002** provides the principal legal framework for anti-money laundering efforts in India.

Which of the statements given above is/are correct?

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

Answer: (d)

5. BALOD (CHHATTISGARH)'S JAN BHAGIDARI MODEL GIVES NEW MOMENTUM TO #CATCHTHERAIN MOVEMENT



- Balod has successfully mobilized local communities, Panchayati Raj Institutions (PRIs), and government departments to undertake water conservation activities.
- The district has focused on restoring traditional water bodies, constructing rainwater harvesting structures, and promoting watershed management.
- The **Jan Bhagidari model** emphasizes collective ownership, ensuring better maintenance and sustainability of water assets.
- The initiative improves groundwater recharge, enhances irrigation potential, and supports agriculture during dry periods.
- Community participation has also increased awareness about water conservation and efficient water use.
- The model aligns with the **Jal Shakti Abhiyan: Catch the Rain** campaign, which promotes harvesting rainwater where it falls.



- The initiative contributes to climate adaptation by reducing water scarcity and strengthening local resilience.
- Balod's experience can serve as a replicable model for other districts facing water stress.

BACKGROUND / CONTEXT

Jal Shakti Abhiyan: Catch the Rain

- I. Launched by the **Ministry of Jal Shakti**.
- II. Theme:
 - A. **"Catch the Rain – Where it Falls, When it Falls."**
- III. Objective:
 - A. Promote rainwater harvesting.
 - B. Improve groundwater recharge.
 - C. Enhance water conservation through community participation.

Jan Bhagidari

- Means **people's participation** in planning, implementation, and maintenance of development initiatives.
- Encourages ownership and sustainability of public assets.

Key Water Conservation Measures

- Rainwater harvesting.
- Pond rejuvenation.
- Check dams.
- Farm ponds.
- Watershed development.
- Afforestation.
- Groundwater recharge structures.

Importance

- Improves water availability.
- Supports agriculture and rural livelihoods.
- Reduces drought vulnerability.
- Enhances climate resilience.
- Promotes sustainable water management.

KEY HIGHLIGHTS

- **District:** Balod, Chhattisgarh.

- **Initiative:** Community-led implementation of the **#CatchTheRain** campaign.
- **Approach:** Jan Bhagidari (People's Participation).
- **Objective:** Water conservation, groundwater recharge, and sustainable water management.
- **Environmental Significance:** Conserves water resources and strengthens ecosystem resilience.
- **Economic Significance:** Improves irrigation, agricultural productivity, and rural livelihoods.
- **Governance Impact:** Demonstrates participatory and decentralized water governance.
- **Challenges:** Maintenance of water structures, changing rainfall patterns, and ensuring sustained community engagement.
- **Way Forward:** Scale up community-led water conservation, integrate watershed planning, encourage traditional water harvesting systems, and strengthen convergence with schemes such as **MGNREGA, PMKSY, and Atal Bhujal Yojana**.

PRELIMS BOOSTER BOX

- **Jal Shakti Abhiyan:** National campaign for water conservation launched by the **Ministry of Jal Shakti**.
- **Catch the Rain Theme:** **"Catch the Rain – Where it Falls, When it Falls."**
- **Rainwater Harvesting:** Collection and storage of rainwater for future use and groundwater recharge.
- **Groundwater Recharge:** Natural or artificial replenishment of underground aquifers.
- **Watershed:** Land area that drains rainfall into a common river, lake, or reservoir.
- **Check Dam:** Small barrier built across streams to slow water flow and increase groundwater recharge.



- **Farm Pond:** Small water storage structure constructed on farms for irrigation and other agricultural purposes.
- **PMKSY (Pradhan Mantri Krishi Sinchayee Yojana):** Scheme aimed at expanding irrigation coverage and improving water-use efficiency.
- **Atal Bhujal Yojana (Atal Jal):** Central Sector Scheme promoting sustainable groundwater management through community participation.
- **MGNREGA:** Provides wage employment while creating durable rural assets, including water conservation structures.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **Catch the Rain** campaign is implemented under the **Ministry of Jal Shakti**.
2. The campaign promotes the principle of **"Catch the Rain – Where it Falls, When it Falls."**
3. Community participation (Jan Bhagidari) is a key element in ensuring the sustainability of water conservation initiatives.

Which of the statements given above is/are correct?

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

Answer: (d)

1. INDIA-NEW ZEALAND JOINT STATEMENT



- Both countries agreed to strengthen their bilateral partnership through greater economic, strategic, and technological cooperation.
- They reaffirmed their commitment to enhancing trade, investment, innovation, and supply chain resilience.
- The leaders emphasized cooperation in agriculture, food processing, renewable energy, digital technologies, and critical minerals.
- Both sides agreed to deepen defence and maritime cooperation to promote peace, stability, and security in the Indo-Pacific.
- The Joint Statement highlighted collaboration in education, research, tourism, and skill development to strengthen people-to-people links.

- They reiterated their commitment to combating terrorism in all its forms and supporting a rules-based international order.
- The statement also emphasized cooperation on climate change, sustainable development, and multilateral institutions.
- India and New Zealand agreed to continue high-level political engagement and expand sectoral partnerships.

BACKGROUND / CONTEXT

India-New Zealand Relations

- Diplomatic Relations:** Established in **1952**.
- Based on shared democratic values, the rule of law, and a commitment to a rules-based international order.
- Key areas of cooperation include:
 - Trade and investment.
 - Agriculture and dairy research.
 - Education and skill development.
 - Science, technology, and innovation.
 - Renewable energy.
 - Maritime security.
 - Tourism and cultural exchanges.

Economic Cooperation

- New Zealand exports dairy products, wood, fruits, and wool.
- India exports pharmaceuticals, textiles, machinery, IT services, and engineering goods.
- Both countries seek to diversify trade and encourage investment.

Strategic Cooperation

- Support a **free, open, inclusive, and rules-based Indo-Pacific**.
- Cooperate on maritime security, disaster resilience, and regional stability.
- Engage through multilateral forums such as the **East Asia Summit (EAS)** and the **Commonwealth**.

KEY HIGHLIGHTS

- **Document:** India–New Zealand Joint Statement.
- **Focus Areas:** Trade, defence, education, technology, agriculture, climate action, and people-to-people ties.
- **Strategic Significance:** Strengthens cooperation in the Indo-Pacific and reinforces the rules-based international order.
- **Economic Significance:** Promotes trade diversification, investment, and resilient supply chains.
- **Environmental Significance:** Expands collaboration on renewable energy, climate resilience, and sustainable development.
- **Governance Impact:** Reinforces cooperation through regular high-level dialogues and institutional mechanisms.
- **Challenges:** Expanding bilateral trade, addressing market access issues, and enhancing connectivity.
- **Way Forward:** Conclude mutually beneficial trade arrangements, strengthen innovation partnerships, expand educational exchanges, deepen maritime cooperation, and promote collaboration in emerging technologies and clean energy.

PRELIMS BOOSTER BOX

- **Diplomatic Relations:** India and New Zealand established diplomatic relations in **1952**.
- **Indo-Pacific:** Strategic region spanning the Indian and Pacific Oceans, central to global trade and security.
- **Rules-Based International Order:** International system governed by agreed norms, treaties, and international law.
- **East Asia Summit (EAS):** Leaders-led forum promoting strategic dialogue and cooperation in the Indo-Pacific.

- **Commonwealth:** Voluntary association of **56** independent countries, many of which were former territories of the British Empire.
- **Critical Minerals:** Minerals such as lithium, cobalt, nickel, and rare earth elements essential for clean energy technologies.
- **Supply Chain Resilience:** Ability of supply chains to withstand disruptions and ensure continuity of production and trade.
- **Renewable Energy:** Energy generated from naturally replenishing sources such as solar, wind, and hydropower.
- **People-to-People Ties:** Cultural, educational, tourism, and diaspora exchanges that strengthen bilateral relations.
- **Maritime Security:** Measures to ensure safe, secure, and lawful use of the seas.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. India and New Zealand established diplomatic relations in **1952**.
2. Both countries support a **free, open, inclusive, and rules-based Indo-Pacific**.
3. Cooperation between India and New Zealand includes trade, education, agriculture, maritime security, and climate action.

Which of the statements given above is/are correct?

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

Answer: (d)

2. INDIAN NAVY COMMISSIONS MADE-IN-INDIA ADVANCED STEALTH FRIGATE 'INS MAHENDRAGIRI' AT VISA KHAPATNAM



- **INS Mahendragiri** is an advanced multi-role stealth frigate designed and built in India under **Project 17A**.
- The warship is equipped with advanced stealth features, modern sensors, integrated combat management systems, and sophisticated weapon systems.
- It is capable of undertaking anti-air, anti-surface, and anti-submarine warfare operations.
- The commissioning strengthens India's maritime security and operational readiness in the **Indian Ocean Region (IOR)**.
- The vessel showcases India's growing indigenous shipbuilding capabilities and reflects the success of the **Make in India** and **Aatmanirbhar Bharat** initiatives in the defence sector.

- Indigenous content in Project 17A warships contributes to technological self-reliance and supports the domestic defence industrial ecosystem.
- The frigate will play an important role in protecting Sea Lines of Communication (SLOCs), maritime interests, and regional stability.
- The induction further reinforces India's commitment to becoming a major defence manufacturing hub.

BACKGROUND / CONTEXT

INS Mahendragiri

- Advanced **stealth guided-missile frigate** of the **Indian Navy**.
- Built under **Project 17A**.
- Designed for:
 - Anti-Air Warfare (AAW).
 - Anti-Submarine Warfare (ASW).
 - Anti-Surface Warfare (ASuW).
 - Maritime surveillance.
 - Escort and fleet operations.

Project 17A

- Follow-on programme to **Project 17 (Shivalik-class)** frigates.
- Involves the construction of **seven advanced stealth frigates**.
- Built by:
 - Mazagon Dock Shipbuilders Limited (MDL), Mumbai.**
 - Garden Reach Shipbuilders & Engineers (GRSE), Kolkata.**

Stealth Technology

- Reduces the ship's:
 - Radar signature.
 - Infrared signature.
 - Acoustic signature.
- Enhances survivability during combat.

Aatmanirbhar Bharat in Defence

- Promotes indigenous design, development, and manufacturing of defence equipment.
- Supports technology development, employment generation, and reduced import dependence.

KEY HIGHLIGHTS

- **Warship:** INS Mahendragiri.
- **Class:** Advanced stealth guided-missile frigate.
- **Project:** Project 17A.
- **Commissioned At:** Visakhapatnam.
- **Strategic Significance:** Enhances India's maritime deterrence and operational capability in the Indian Ocean Region.
- **Economic Significance:** Boosts indigenous defence manufacturing and strengthens the domestic shipbuilding industry.
- **Technological Significance:** Incorporates advanced stealth features, integrated combat systems, and modern weaponry.
- **Challenges:** Rapid technological evolution, maintenance of advanced naval platforms, and emerging maritime threats.
- **Way Forward:** Accelerate indigenous naval shipbuilding, strengthen defence R&D, integrate advanced technologies such as AI and unmanned systems, and expand maritime cooperation with partner nations.

PRELIMS BOOSTER BOX

- **INS Mahendragiri:** Advanced stealth guided-missile frigate commissioned into the Indian Navy.
- **Project 17A:** Programme for constructing **seven** advanced stealth frigates.
- **Project 17:** Earlier programme that produced the **Shivalik-class** stealth frigates.
- **MDL:** Mazagon Dock Shipbuilders Limited, Mumbai.
- **GRSE:** Garden Reach Shipbuilders & Engineers, Kolkata.

- **Stealth Technology:** Reduces radar, infrared, acoustic, and electromagnetic signatures to improve survivability.
- **Blue-Water Navy:** A navy capable of sustained operations across the open oceans far from its home bases.
- **SLOCs (Sea Lines of Communication):** Maritime routes essential for global trade and naval movement.
- **Anti-Submarine Warfare (ASW):** Operations to detect, track, and neutralize enemy submarines.
- **Aatmanirbhar Bharat:** National initiative promoting self-reliance in manufacturing, including defence production.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. **INS Mahendragiri** is an advanced stealth guided-missile frigate built under **Project 17A**.
2. **Project 17A** is a follow-on programme to the **Project 17 Shivalik-class** frigates.
3. Stealth technology in naval warships aims to reduce radar, infrared, and acoustic signatures.

Which of the statements given above is/are correct?

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

Answer: (d)

3. UNION MINISTER SHRI CHIRAG PASWAN HAILS PMFME SCHEME'S LANDMARK ACHIEVEMENT OF OVER TWO LAKH CREDIT-LINKED BENEFICIARIES



- PMFME provides **credit-linked financial assistance** to micro food processing enterprises for modernization, expansion, and formalization.
- The scheme promotes the **One District One Product (ODOP)** approach to develop district-specific food processing clusters.
- Financial support helps entrepreneurs upgrade technology, improve product quality, and enhance market competitiveness.
- The scheme encourages entrepreneurship among individuals, Self-Help Groups (SHGs), Farmer Producer Organizations (FPOs), and cooperatives.
- Capacity-building, training, branding, marketing, and technical support are integral components of PMFME.
- The initiative contributes to reducing post-harvest losses, increasing farmers' incomes, and generating rural employment.
- PMFME aligns with the vision of **Atmanirbhar Bharat** by strengthening domestic food processing industries.

- The milestone reflects increasing access to institutional finance for small food processing entrepreneurs.

BACKGROUND / CONTEXT

PM Formalisation of Micro Food Processing Enterprises (PMFME) Scheme

- **Launched:** 2020.
- **Nodal Ministry:** Ministry of Food Processing Industries (MoFPI).
- **Type:** Centrally Sponsored Scheme.
- **Duration:** Initially for **2020–21 to 2024–25** (implementation has since been extended by the Government).

Objectives

- Formalize unorganized micro food processing units.
- Improve access to institutional credit.
- Promote value addition and processing.
- Enhance competitiveness of micro enterprises.
- Reduce food wastage and post-harvest losses.

Key Features

- I. **Credit-linked capital subsidy: 35%** of eligible project cost (subject to prescribed limits).
- II. Promotion of the **One District One Product (ODOP)** approach.
- III. Support for:
 - A. Individual entrepreneurs.
 - B. Farmer Producer Organizations (FPOs).
 - C. Self-Help Groups (SHGs).
 - D. Producer Cooperatives.

One District One Product (ODOP)

- Focuses on promoting a unique food product with high potential from each district.
- Encourages branding, processing, value addition, and market access.

KEY HIGHLIGHTS

- **Scheme:** PM Formalisation of Micro Food Processing Enterprises (PMFME).



- **Nodal Ministry:** Ministry of Food Processing Industries.
- **Achievement:** Over 2 lakh credit-linked beneficiaries.
- **Focus:** Formalization, modernization, and credit support for micro food processing enterprises.
- **Economic Significance:** Enhances value addition, rural employment, and agricultural income.
- **Social Significance:** Promotes entrepreneurship, especially among SHGs, women, and small producers.
- **Challenges:** Limited awareness, market access constraints, technology adoption, and quality certification.
- **Way Forward:** Expand credit access, strengthen branding and export promotion, improve food quality standards, encourage digital marketing, and integrate PMFME with other agricultural value chain initiatives.

post-harvest losses and enhancing farmers' incomes.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **PM Formalisation of Micro Food Processing Enterprises (PMFME) Scheme** was launched in **2020**.
2. The scheme is implemented by the **Ministry of Food Processing Industries**.
3. The **One District One Product (ODOP)** approach under PMFME seeks to promote district-specific food products through value addition and branding.

Which of the statements given above is/are correct?

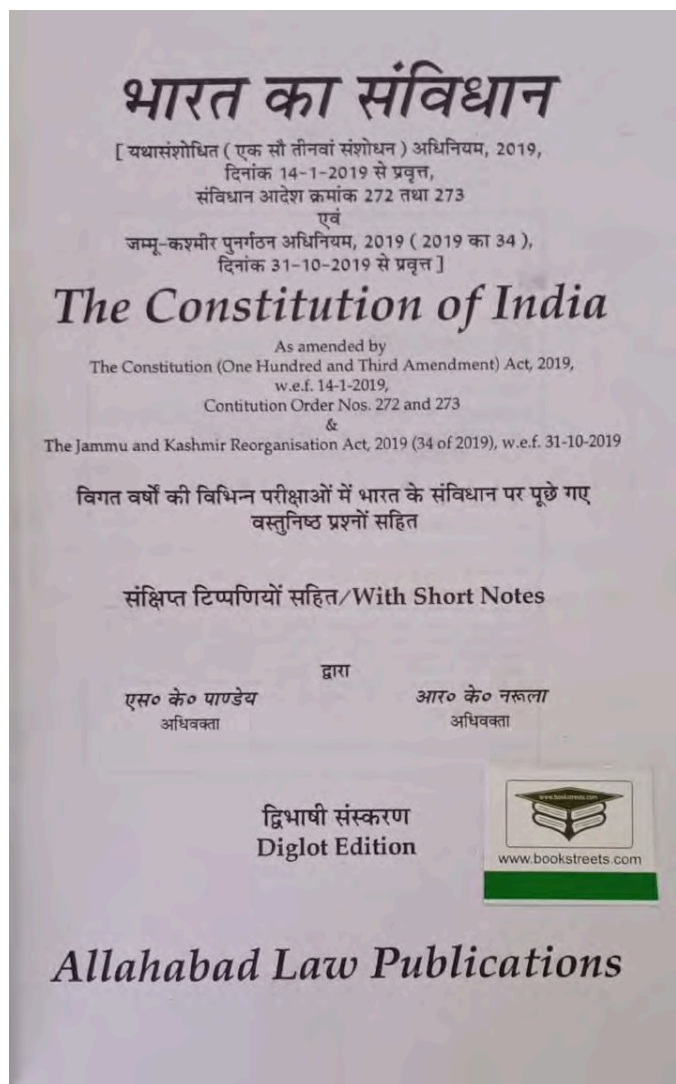
- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer: (d)

PRELIMS BOOSTER BOX

- **PMFME:** Pradhan Mantri Formalisation of Micro Food Processing Enterprises Scheme.
- **Launch Year:** 2020.
- **Nodal Ministry:** Ministry of Food Processing Industries (MoFPI).
- **Type:** Centrally Sponsored Scheme.
- **Credit-Linked Subsidy:** 35% of the eligible project cost (subject to prescribed limits).
- **ODOP: One District One Product** initiative promoting district-specific products.
- **FPO:** Farmer Producer Organization—a collective of farmers for better market access and economies of scale.
- **SHG:** Self-Help Group—a community-based group promoting savings, credit, and livelihoods.
- **Value Addition:** Processing agricultural produce to increase its economic value.
- **Food Processing Sector:** Acts as a critical link between agriculture and industry by reducing

4. NATIONAL CONFERENCE ON "STRENGTHENING LEGAL EDUCATION THROUGH INTEGRATION OF REGIONAL LANGUAGES"



- The conference emphasized the need to integrate regional languages into legal education to make the study of law more accessible.
- It highlighted that language should not become a barrier to legal literacy, legal education, or access to justice.

- Discussions covered the translation of legal texts, judgments, statutes, and academic resources into Indian languages.
- Experts stressed the importance of developing multilingual legal terminology and digital legal resources.
- The conference encouraged collaboration among universities, judicial institutions, language experts, and regulatory bodies.
- It aligns with the objectives of **NEP 2020**, which promotes education in the mother tongue and multilingualism.
- The initiative is expected to increase participation of students from diverse linguistic backgrounds in legal education.
- It also supports the constitutional vision of ensuring equal access to justice and legal empowerment.

BACKGROUND / CONTEXT

Legal Education in India

- Regulated primarily by the **Bar Council of India (BCI)** under the **Advocates Act, 1961**.
- Offered through:
 - National Law Universities (NLUs).
 - State universities.
 - Private law colleges.
- Traditionally, legal education has been dominated by English, though courts and legal proceedings also use several Indian languages.

National Education Policy (NEP), 2020

- Emphasizes:
 - Multilingualism.
 - Mother tongue/local language as the medium of instruction, especially in early education.
 - Greater inclusion and equity in higher education.
 - Preservation and promotion of Indian languages.

Constitutional Provisions

- **Article 343:** Declares **Hindi in Devanagari script** as the Official Language of the Union (with continued use of English as provided by law).
- **Article 348:** Provides that proceedings in the **Supreme Court, High Courts**, and authoritative texts of Central laws are generally in **English**, unless otherwise provided.
- **Eighth Schedule:** Recognizes **22 Indian languages**.

Significance of Regional Languages in Legal Education

- Improves legal literacy.
- Expands access to legal education.
- Enhances access to justice.
- Encourages inclusive participation in the legal profession.
- Strengthens constitutional values of equality and justice.

KEY HIGHLIGHTS

- **Event:** National Conference on integrating regional languages into legal education.
- **Focus:** Multilingual legal education and improved access to justice.
- **Policy Alignment:** National Education Policy (NEP) 2020.
- **Constitutional Significance:** Supports linguistic diversity and equal access to legal knowledge.
- **Educational Impact:** Encourages wider participation in legal education from diverse linguistic backgrounds.
- **Governance Impact:** Strengthens legal awareness and citizen empowerment.
- **Challenges:** Translation accuracy, development of standardized legal terminology, faculty training, and availability of quality study materials.
- **Way Forward:** Develop multilingual legal textbooks, strengthen legal translation

infrastructure, leverage AI-enabled translation tools, promote bilingual legal education, and expand digital legal repositories in Indian languages.

PRELIMS BOOSTER BOX

- **NEP 2020:** National Education Policy promoting multilingualism and inclusive education.
- **Bar Council of India (BCI):** Statutory body regulating legal education and the legal profession under the **Advocates Act, 1961**.
- **Advocates Act, 1961:** Governs the legal profession and legal education in India.
- **Article 343:** Official Language of the Union.
- **Article 348:** Language of the Supreme Court, High Courts, and authoritative texts of laws.
- **Eighth Schedule:** Recognizes **22** scheduled languages.
- **Access to Justice:** Principle ensuring that all individuals can effectively seek and obtain legal remedies.
- **Legal Literacy:** Awareness of legal rights, duties, and remedies.
- **Multilingualism:** Use and promotion of multiple languages in education and governance.
- **National Law Universities (NLUs):** Premier institutions offering legal education in India.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **Bar Council of India (BCI)** regulates legal education under the **Advocates Act, 1961**.
2. **Article 348** of the Constitution deals with the language to be used in the Supreme Court, High Courts, and authoritative texts of laws.
3. The **National Education Policy (NEP) 2020** promotes multilingualism and greater use of Indian languages in education.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

Answer: (d)

5. LAKHANPUR AMONG FIRST TOWNS SELECTED UNDER PM SVANIDHI 'STREET FOOD HUB' PLAN



- Lakhanpur's inclusion under the Street Food Hub initiative seeks to improve infrastructure, hygiene standards, branding, and customer facilities for street food vendors.
- The initiative is linked with the **PM Street Vendor's AtmaNirbhar Nidhi (PM SVANidhi)** Scheme, which supports urban street vendors through affordable institutional credit and capacity building.
- The project aims to generate employment, promote local cuisine, and boost tourism.
- Street food hubs are expected to provide standardized vending spaces, sanitation facilities, waste management, and digital payment infrastructure.
- The initiative supports financial inclusion by encouraging vendors to adopt formal banking and digital transactions.
- It contributes to urban livelihood enhancement while preserving local culinary traditions.
- The scheme also aligns with the Government's objectives of inclusive urban development and self-reliance.

- Lakhanpur's strategic location as a gateway to Jammu & Kashmir offers significant tourism and economic potential.

BACKGROUND / CONTEXT

PM SVANidhi Scheme

- **Full Form:** Pradhan Mantri Street Vendor's AtmaNirbhar Nidhi (PM SVANidhi).
- **Launched:** 2020.
- **Nodal Ministry:** Ministry of Housing and Urban Affairs (MoHUA).
- **Objective:** Provide affordable working capital loans to urban street vendors affected by the COVID-19 pandemic and promote their financial inclusion.

Key Features

- Collateral-free working capital loans.
- Incentives for timely repayment.
- Cashback on digital transactions.
- Progressive enhancement of loan limits for successful repayment.
- Promotion of digital and formal financial services.

Street Food Hub Initiative

- Focuses on:
 - Hygienic food preparation.
 - Improved vending infrastructure.
 - Tourism promotion.
 - Skill development.
 - Branding and marketing.
 - Better customer amenities.

Importance of Lakhanpur

- Located in **Kathua district**, Jammu & Kashmir.
- Serves as a major entry point to the Union Territory from Punjab.
- Has potential to emerge as a tourism and commercial hub.

KEY HIGHLIGHTS

- **Town Selected:** Lakhanpur, Jammu & Kashmir.



- **Scheme:** PM SVANidhi – Street Food Hub Initiative.
- **Nodal Ministry:** Ministry of Housing and Urban Affairs.
- **Objective:** Improve livelihoods of street vendors through better infrastructure, hygiene, and financial inclusion.
- **Economic Significance:** Promotes local entrepreneurship, tourism, and employment generation.
- **Social Significance:** Enhances dignity and income security for street vendors.
- **Governance Impact:** Encourages formalization of the informal urban economy and digital financial inclusion.
- **Challenges:** Maintaining hygiene standards, capacity building, waste management, and sustained market demand.
- **Way Forward:** Expand the Street Food Hub model, integrate digital technologies, strengthen vendor training, improve urban infrastructure, and promote local cuisine through tourism campaigns.

PRELIMS BOOSTER BOX

- **PM SVANidhi:** Pradhan Mantri Street Vendor's AtmaNirbhar Nidhi.
- **Launch Year:** 2020.
- **Nodal Ministry:** Ministry of Housing and Urban Affairs (MoHUA).
- **Target Beneficiaries:** Urban street vendors.
- **Nature of Assistance:** Collateral-free working capital loans with incentives for digital transactions and timely repayment.
- **Financial Inclusion:** Ensures access to formal banking, credit, and digital payment systems.
- **Street Vendor:** A person engaged in vending goods, food, or services in public places, regulated under the **Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014**.

- **Digital Payments:** Electronic payment systems such as UPI, QR code-based payments, and other digital modes.
- **Urban Livelihood:** Economic activities that provide income and employment opportunities in urban areas.
- **Street Food Hub:** Organized cluster of street food vendors with improved infrastructure, hygiene, branding, and tourist-friendly facilities.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. **PM SVANidhi** was launched in **2020** to provide collateral-free working capital loans to urban street vendors.
2. The **PM SVANidhi** Scheme is implemented by the **Ministry of Housing and Urban Affairs**.
3. The **Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014** provides a legal framework for protecting the livelihoods of street vendors.

Which of the statements given above is/are correct?

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

Answer: (d)

1. WEAVING SUSTAINABILITY INTO INDIA'S TEXTILE FUTURE



- The textile sector is adopting sustainable manufacturing practices such as water conservation, energy efficiency, renewable energy use, and waste reduction.
- Circular economy principles—including textile recycling, reuse, and sustainable fibre production—are being promoted to reduce environmental impacts.
- The Government is encouraging the production of **technical textiles**, **organic fibres**, and environmentally friendly manufacturing technologies.
- Sustainable practices help reduce carbon emissions, water consumption, and textile waste while improving export competitiveness.
- Initiatives also focus on supporting artisans, MSMEs, and traditional handloom sectors through green production methods.
- The adoption of internationally accepted sustainability standards can improve India's access to global textile markets.
- The transition contributes to employment generation, innovation, and long-term industrial resilience.
- Sustainable textiles support India's vision of becoming a global hub for environmentally responsible manufacturing.

BACKGROUND / CONTEXT

Indian Textile Sector

- I. One of India's largest employment-generating sectors after agriculture.
- II. Contributes significantly to:
 - A. Manufacturing output.
 - B. Exports.
 - C. Employment.
 - D. Rural livelihoods.
- III. Covers:
 - A. Cotton.
 - B. Silk.
 - C. Wool.
 - D. Jute.
 - E. Man-made fibres.
 - F. Technical textiles.

Major Government Initiatives

PM MITRA Scheme

- **PM Mega Integrated Textile Region and Apparel (PM MITRA) Parks.**
- Aims to develop world-class integrated textile infrastructure.

National Technical Textiles Mission (NTTM)

- **Launched: 2020.**
- Promotes research, innovation, and domestic manufacturing of technical textiles.

Production Linked Incentive (PLI) Scheme for Textiles

- Encourages investment in **Man-Made Fibre (MMF)** apparel and **technical textiles**.

Sustainability Measures

- Water-efficient dyeing technologies.
- Renewable energy adoption.
- Zero Liquid Discharge (ZLD) systems.
- Organic and recycled fibres.
- Circular economy practices.
- Sustainable certification and traceability.

KEY HIGHLIGHTS

- **Focus:** Sustainable transformation of India's textile sector.
- **Objectives:** Green manufacturing, circular economy, resource efficiency, and export competitiveness.
- **Economic Significance:** Enhances exports, attracts investments, and creates employment.
- **Environmental Significance:** Reduces pollution, conserves water, lowers carbon emissions, and minimizes waste.
- **Social Significance:** Supports artisans, MSMEs, and sustainable livelihoods.
- **Challenges:** High compliance costs, technology adoption, financing constraints, and global sustainability standards.
- **Way Forward:** Expand green technologies, strengthen textile recycling infrastructure, promote sustainable fibre production, encourage ESG compliance, and improve skill development for green manufacturing.

PRELIMS BOOSTER BOX

- **PM MITRA: PM Mega Integrated Textile Region and Apparel Parks Scheme** to develop integrated textile manufacturing ecosystems.
- **National Technical Textiles Mission (NTTM):** Launched in **2020** to promote technical textiles.
- **PLI Scheme (Textiles):** Supports production of **Man-Made Fibre (MMF)** apparel and technical textiles.
- **Technical Textiles:** Textiles designed primarily for functional and industrial applications rather than aesthetics.
- **Circular Economy:** Economic model based on reducing, reusing, recycling, and recovering materials.
- **Zero Liquid Discharge (ZLD):** Wastewater treatment process ensuring no liquid waste is discharged into the environment.
- **Organic Cotton:** Cotton cultivated without synthetic pesticides or chemical fertilizers.

- **ESG:** Environmental, Social, and Governance standards used to assess sustainable business practices.
- **Man-Made Fibre (MMF):** Synthetic or regenerated fibres such as polyester, viscose, and nylon.
- **Sustainable Development Goal (SDG) 12:** Responsible Consumption and Production.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **National Technical Textiles Mission (NTTM)** was launched in **2020** to promote research and manufacturing in technical textiles.
2. The **PM MITRA Scheme** aims to develop integrated textile manufacturing parks.
3. A **circular economy** in the textile sector promotes recycling, reuse, and efficient utilization of resources.

Which of the statements given above is/are correct?

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

Answer: (d)

2. EPFO INVITES APPLICATIONS FOR AMNESTY SCHEME FROM PROVIDENT FUND TRUSTS



- I. The Amnesty Scheme offers a one-time opportunity to establishments operating **Income Tax-recognised PF Trusts** that lack a



formal exemption under the **Employees' Provident Funds & Miscellaneous Provisions (EPF & MP) Act, 1952** to regularize their status.

- II. The scheme follows changes introduced through the **Finance Act, 2026**, which aligned the Income Tax framework governing recognised provident funds with the EPF legal framework.
- III. Applications are open for **six months** from **29 June 2026**.
- IV. The scheme classifies eligible establishments into two categories:
 - A. Those opting to become un-exempted establishments after retrospective regularization.
 - B. Those seeking retrospective regularization while continuing as exempted establishments under the **Code on Social Security, 2020**.
- V. Major benefits include:
 - A. Retrospective regularization of exemption status.
 - B. Relaxation of specified eligibility conditions.
 - C. Abatement of certain legal proceedings relating to dues, damages, and interest, subject to prescribed conditions.
- VI. Establishments must ensure audited financial accounts and comply with any special audit directed by EPFO authorities.
- VII. The initiative seeks to reduce long-pending litigation while safeguarding employees' provident fund benefits.

BACKGROUND / CONTEXT

Employees' Provident Fund Organisation (EPFO)

- I. A statutory body under the **Ministry of Labour & Employment**.
- II. Administers:
 - A. Employees' Provident Fund (EPF).

- B. Employees' Pension Scheme (EPS).
- C. Employees' Deposit Linked Insurance (EDLI).

Exempted Provident Fund Trusts

- Certain establishments may maintain their own PF Trusts instead of contributing directly to EPFO.
- Such trusts require exemption under the **EPF & MP Act, 1952** (and corresponding provisions under the **Code on Social Security, 2020**) while providing benefits that are at least equivalent to statutory EPF benefits.

Amnesty Scheme, 2026

- **Notified: 29 June 2026.**
- **Validity:** Six months from the date of notification.
- **Objective:** Resolve historical compliance gaps and facilitate voluntary regularization of eligible PF Trusts.

Legal Framework

- **Employees' Provident Funds & Miscellaneous Provisions Act, 1952.**
- **Code on Social Security, 2020.**
- **Finance Act, 2026**, aligning Income Tax recognition with EPF exemption requirements.

KEY HIGHLIGHTS

- **Scheme:** Amnesty Scheme, 2026.
- **Implementing Agency:** Employees' Provident Fund Organisation (EPFO).
- **Administrative Ministry:** Ministry of Labour & Employment.
- **Objective:** Regularize eligible exempted PF Trusts and improve statutory compliance.
- **Validity:** Six months from **29 June 2026**.
- **Governance Significance:** Simplifies compliance, reduces litigation, and strengthens regulatory oversight.
- **Social Significance:** Protects employees' retirement savings and ensures continuity of provident fund benefits.



- **Challenges:** Timely applications, completion of audits, and adherence to statutory conditions.
- **Way Forward:** Encourage voluntary compliance, strengthen digital governance, simplify exemption procedures, and improve awareness among eligible establishments.

PRELIMS BOOSTER BOX

- **EPFO:** Employees' Provident Fund Organisation.
- **Administrative Ministry:** Ministry of Labour & Employment.
- **EPF & MP Act, 1952:** Principal legislation governing provident funds in India.
- **Code on Social Security, 2020:** Consolidates and rationalizes multiple labour laws relating to social security.
- **Exempted Establishment:** An establishment permitted to maintain its own PF Trust while providing benefits not less favourable than those under the statutory EPF scheme.
- **Recognised Provident Fund:** A provident fund recognized under the **Income Tax Act, 1961**.
- **Finance Act, 2026:** Aligned the Income Tax framework for recognised PFs with the EPF statutory framework.
- **Employees' Pension Scheme (EPS):** Pension scheme administered by EPFO for eligible employees.
- **Employees' Deposit Linked Insurance (EDLI):** Insurance benefit linked to EPF membership.
- **Social Security:** Measures providing income security and protection against contingencies such as retirement, disability, and death.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **Employees' Provident Fund Organisation (EPFO)** functions under the **Ministry of Labour & Employment**.
2. The **Amnesty Scheme, 2026** provides a one-time opportunity for eligible provident fund trusts to regularize their status.

3. The **Code on Social Security, 2020** consolidates several labour laws relating to social security.

Which of the statements given above is/are correct?

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

Answer: (d)

3. SANKALP: A Citizen-Centric Governance Framework



WHAT IS SANKALP?

SANKALP stands for:

Letter	Principle	Meaning
S	Speed	Timely decision-making and faster delivery of public services.
A	Accessibility	Ensuring government services are easily available to every citizen, including those in remote and underserved areas.
N	Nekneeyat	Good intentions, integrity, honesty, and ethical conduct in governance.

K	Kartavyanishtha	Dedication to duty, accountability, and commitment to public service.
A	Adoption of Technology	Leveraging digital technologies, AI, data analytics, and Digital Public Infrastructure (DPI) to improve governance.
L	Lokhit	Prioritizing public welfare and inclusive development in policymaking.
P	Pardarshita	Transparency, openness, and accountability in government functioning.

- **SANKALP** provides a framework for improving governance through speed, transparency, technology adoption, and citizen-centric administration.
- It encourages efficient public service delivery while ensuring accountability and ethical governance.
- The framework aligns with India's digital governance initiatives such as **Digital India**, **e-Governance**, and **Digital Public Infrastructure (DPI)**.
- It emphasizes reducing bureaucratic delays and improving accessibility of government services.
- Technology-driven governance is expected to enhance transparency, reduce corruption, and improve efficiency.
- The principles reinforce the vision of **Minimum Government, Maximum Governance**.
- SANKALP supports inclusive and responsive governance focused on public welfare.
- The framework complements broader governance reforms aimed at achieving **Viksit Bharat**.

BACKGROUND / CONTEXT

Citizen-Centric Governance

Citizen-centric governance focuses on:

- Efficient service delivery.
- Transparency and accountability.
- Ease of living.
- Digital governance.
- Inclusive development.
- Participatory decision-making.

Related Government Initiatives

- **Digital India Mission**
- **Digital Public Infrastructure (DPI)**
- **CPGRAMS (Centralized Public Grievance Redress and Monitoring System)**
- **JAM Trinity (Jan Dhan–Aadhaar–Mobile)**
- **Direct Benefit Transfer (DBT)**
- **National e-Governance Plan (NeGP)**

KEY HIGHLIGHTS

- **Framework:** SANKALP.
- **Objective:** Promote transparent, accountable, technology-enabled, and citizen-centric governance.
- **Core Pillars:** Speed, Accessibility, Nekneeyat, Kartavyanishtha, Adoption of Technology, Lokhit, and Pardarshita.
- **Governance Significance:** Improves service delivery, strengthens public trust, and enhances institutional efficiency.
- **Technological Significance:** Encourages AI, digital platforms, and data-driven decision-making.
- **Social Significance:** Promotes inclusive and accessible governance.
- **Challenges:** Digital divide, capacity building, cybersecurity, and ensuring data privacy.
- **Way Forward:** Expand digital inclusion, strengthen grievance redressal systems, improve institutional capacity, enhance



transparency, and promote ethical governance.

PRELIMS BOOSTER BOX

- **Digital India:** Flagship programme launched in **2015** to transform India into a digitally empowered society and knowledge economy.
- **Digital Public Infrastructure (DPI):** Foundational digital systems such as **Aadhaar**, **UPI**, and **DigiLocker** that enable efficient public and private service delivery.
- **DBT (Direct Benefit Transfer):** Transfers government benefits directly into beneficiaries' bank accounts to reduce leakages.
- **JAM Trinity: Jan Dhan–Aadhaar–Mobile**, enabling financial inclusion and targeted welfare delivery.
- **CPGRAMS:** Online platform for citizens to lodge grievances related to government services.
- **Good Governance:** Governance characterized by transparency, accountability, responsiveness, participation, effectiveness, and the rule of law.
- **Minimum Government, Maximum Governance:** Governance philosophy emphasizing streamlined administration and efficient public service delivery.
- **Viksit Bharat:** Vision of transforming India into a developed nation through inclusive, sustainable, and technology-driven growth.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. In the **SANKALP** governance framework, '**P**' stands for **Pardarshita (Transparency)**.
2. The principle of '**Adoption of Technology**' under SANKALP aims to improve governance through digital technologies and data-driven service delivery.
3. **Direct Benefit Transfer (DBT)** is an initiative designed to transfer government benefits directly to beneficiaries' bank accounts.

Which of the statements given above is/are correct?

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

Answer: (d)

4. INDIA'S GOLDEN SWEEP AT THE 56th INTERNATIONAL PHYSICS OLYMPIAD (IPhO) 2026



- The Indian team secured **5 Gold Medals**, with every participant winning gold.
- The achievement underscores India's strong foundation in physics education and the effectiveness of its Olympiad training ecosystem.
- The International Physics Olympiad is one of the world's most prestigious competitions for pre-university students, testing advanced theoretical and experimental physics skills.
- India's performance strengthens its reputation in international STEM education.



- The success is a result of rigorous national selection, intensive mentoring, and specialized training.
- The achievement is expected to inspire more students to pursue careers in science, technology, engineering, and mathematics (STEM).
- It aligns with India's vision of promoting scientific temper, innovation, and research.
- The accomplishment also enhances India's standing in global academic competitions.

BACKGROUND / CONTEXT

International Physics Olympiad (IPhO)

- I. Established in **1967**.
- II. Annual international competition for **secondary/high school students**.
- III. Participants compete in:
 - A. **Theoretical Physics**
 - B. **Experimental Physics**
- IV. One of the **International Science Olympiads**.

India's Participation

- India has participated regularly in IPhO and has consistently improved its performance over the years.
- Students are selected through a multi-stage national Olympiad process and undergo intensive training before representing India internationally.

Olympiad Selection Process (India)

- Conducted through a series of national-level examinations and training camps coordinated by the **Homi Bhabha Centre for Science Education (HBCSE)**, a constituent institution of the **Tata Institute of Fundamental Research (TIFR)**.
- HBCSE serves as the nodal centre for India's participation in International Science Olympiads.

KEY HIGHLIGHTS

- **Event:** 56th International Physics Olympiad (IPhO) 2026.
- **Venue:** Bucaramanga, Colombia.
- **India's Achievement: 5 Gold Medals (Golden Sweep).**
- **Significance:** One of India's finest performances at the International Physics Olympiad.
- **Educational Significance:** Promotes excellence in physics and STEM education.
- **Scientific Significance:** Encourages scientific temper, research, and innovation among students.
- **Global Significance:** Enhances India's reputation in international academic competitions.
- **Way Forward:** Strengthen STEM education, expand Olympiad outreach, invest in research infrastructure, encourage inquiry-based learning, and support gifted students through advanced mentoring programmes.

PRELIMS BOOSTER BOX

- **IPhO:** International Physics Olympiad.
- **Established:** 1967.
- **Participants:** Pre-university (secondary/high school) students.
- **Competition Format:** Theoretical and experimental physics examinations.
- **HBCSE:** Homi Bhabha Centre for Science Education, Mumbai.
- **Parent Institution:** Tata Institute of Fundamental Research (TIFR).
- **Role of HBCSE:** National coordinator for India's participation in International Science Olympiads.
- **Scientific Temper:** Promoted under **Article 51A(h)** of the Constitution as a **Fundamental Duty**, which calls upon every citizen "to develop the scientific temper, humanism and the spirit of inquiry and reform."

- **STEM:** Science, Technology, Engineering, and Mathematics.
- **International Science Olympiads:** Global competitions in Physics, Mathematics, Chemistry, Biology, Informatics, Astronomy & Astrophysics, among others.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **International Physics Olympiad (IPhO)** was established in **1967**.
2. In India, participation in the International Physics Olympiad is coordinated by the **Homi Bhabha Centre for Science Education (HBCSE)**, a constituent institution of **Tata Institute of Fundamental Research (TIFR)**.
3. **Article 51A(h)** of the Constitution includes the duty to develop **scientific temper, humanism, and the spirit of inquiry and reform**.

Which of the statements given above is/are correct?

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

Answer: (d)

5. VRIKSH MITRA: A PEOPLE'S MOVEMENT FOR A GREENER INDIA



- **Vriksh Mitra** encourages citizens, institutions, youth, Self-Help Groups (SHGs), Panchayati Raj Institutions (PRIs), and civil society

organizations to actively participate in tree plantation and their long-term care.

- The campaign emphasizes that planting trees should be accompanied by their protection and survival to maximize ecological benefits.
- It seeks to increase India's forest and tree cover while restoring degraded landscapes.
- The initiative supports biodiversity conservation, groundwater recharge, soil conservation, and carbon sequestration.
- Community participation is central to transforming afforestation into a sustainable people's movement.
- The campaign aligns with India's climate commitments under the **Paris Agreement** and its goal of creating an additional carbon sink through forests and tree cover.
- It complements ongoing national programmes on afforestation, ecosystem restoration, and sustainable land management.
- Vriksh Mitra reinforces the principle that environmental protection is a shared societal responsibility.

BACKGROUND / CONTEXT

Importance of Afforestation

Afforestation contributes to:

- Carbon sequestration.
- Climate change mitigation.
- Biodiversity conservation.
- Prevention of soil erosion.
- Groundwater recharge.
- Improvement of air quality.
- Sustainable livelihoods.

Major Government Initiatives

National Mission for a Green India (Green India Mission)

- I. One of the **eight missions** under the **National Action Plan on Climate Change (NAPCC)**.
- II. Focuses on:



- A. Increasing forest and tree cover.
- B. Restoring degraded ecosystems.
- C. Enhancing ecosystem services.

National Afforestation Programme (NAP)

- Supports afforestation and ecological restoration through community participation.

Ek Ped Maa Ke Naam

- Nationwide tree plantation campaign encouraging citizens to plant a tree in the name of their mother.

KEY HIGHLIGHTS

- **Initiative:** Vriksh Mitra.
- **Approach:** Jan Bhagidari (People's Participation).
- **Objective:** Promote tree plantation, environmental conservation, and sustainable ecological restoration.
- **Environmental Significance:** Enhances forest cover, biodiversity, and climate resilience.
- **Climate Significance:** Contributes to carbon sequestration and India's climate goals.
- **Social Significance:** Encourages community ownership of environmental conservation.
- **Challenges:** Ensuring survival of planted saplings, preventing deforestation, and maintaining ecological balance.
- **Way Forward:** Promote native species, strengthen community-based forest management, improve monitoring of plantation survival, integrate technology for tracking plantations, and enhance public awareness.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **Green India Mission** is one of the **eight missions** under the **National Action Plan on Climate Change (NAPCC)**.
2. **Carbon sequestration** refers to the process of capturing and storing atmospheric carbon dioxide.

3. **Afforestation** means planting trees on land that was not previously under forest cover.

Which of the statements given above is/are correct?

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

Answer: (d)

1. GUARDIANS OF INDIA'S MARITIME FRONTIERS



- India's maritime forces protect over **7,500 km of coastline**, island territories, and vast maritime zones.
- The **Indian Navy** is responsible for defending the nation against external maritime threats, maintaining sea control, and ensuring freedom of navigation.
- The **Indian Coast Guard (ICG)** performs law enforcement, maritime safety, search and rescue (SAR), pollution response, anti-smuggling, anti-poaching, and coastal security functions.
- Both organizations work together to safeguard **Sea Lines of Communication (SLOCs)**, offshore energy installations, ports, and the **Exclusive Economic Zone (EEZ)**.
- India conducts anti-piracy patrols, Humanitarian Assistance and Disaster Relief (HADR) missions, and evacuation operations, enhancing its role as a **net security provider** in the Indian Ocean.
- Indigenous naval platforms, advanced surveillance systems, and maritime domain awareness strengthen operational preparedness.

- Maritime cooperation with friendly countries through joint exercises and information sharing contributes to regional peace and stability.
- These efforts support India's vision of **SAGAR (Security and Growth for All in the Region)** and a **free, open, inclusive, and rules-based Indo-Pacific**.

BACKGROUND / CONTEXT

Indian Navy

- I. Maritime branch of the **Indian Armed Forces**.
- II. Functions:
 - A. Defend India's maritime interests.
 - B. Deter external threats.
 - C. Protect Sea Lines of Communication (SLOCs).
 - D. Conduct HADR and maritime diplomacy.
 - E. Secure offshore assets and island territories.

Indian Coast Guard (ICG)

- I. Established under the **Coast Guard Act, 1978**.
- II. Functions under the **Ministry of Defence**.
- III. Responsibilities include:
 - A. Coastal security.
 - B. Maritime law enforcement.
 - C. Search and Rescue (SAR).
 - D. Marine environmental protection.
 - E. Anti-smuggling operations.
 - F. Assistance to fishermen.

SAGAR

- I. **Security and Growth for All in the Region**.
- II. Announced in **2015**.
- III. India's maritime vision promoting:
 - A. Regional cooperation.
 - B. Maritime security.
 - C. Sustainable development.
 - D. Capacity building.

KEY HIGHLIGHTS

- **Maritime Guardians:** Indian Navy and Indian Coast Guard.
- **Primary Objective:** Safeguard India's maritime frontiers and strategic interests.
- **Strategic Importance:** Protects trade routes, energy security, and maritime sovereignty.
- **Economic Importance:** Supports the Blue Economy, fisheries, offshore resources, and maritime trade.
- **Security Role:** Counter-piracy, coastal security, anti-smuggling, anti-terrorism, and maritime surveillance.
- **Diplomatic Role:** Enhances defence cooperation and maritime partnerships in the Indo-Pacific.
- **Challenges:** Maritime terrorism, piracy, illegal fishing, climate-related disasters, cyber threats, and strategic competition.
- **Way Forward:** Modernize naval capabilities, strengthen indigenous shipbuilding, improve Maritime Domain Awareness (MDA), expand coastal surveillance, and deepen regional maritime cooperation.

PRELIMS BOOSTER BOX

- **Indian Coast Guard (ICG):** Established under the **Coast Guard Act, 1978**.
- **Administrative Ministry (ICG):** Ministry of Defence.
- **Indian Navy:** Maritime branch of the Indian Armed Forces.
- **SAGAR: Security and Growth for All in the Region,** India's maritime vision launched in **2015**.
- **Exclusive Economic Zone (EEZ):** Maritime zone extending up to **200 nautical miles** from the baseline under the **United Nations Convention on the Law of the Sea (UNCLOS)**, where a coastal state has sovereign rights over natural resources.

- **Sea Lines of Communication (SLOCs):** Major maritime routes used for international trade and naval movement.
- **Maritime Domain Awareness (MDA):** Comprehensive understanding of activities in the maritime domain affecting security, economy, or environment.
- **Blue Economy:** Sustainable use of ocean resources for economic growth, livelihoods, and ecosystem health.
- **HADR:** Humanitarian Assistance and Disaster Relief operations undertaken during natural disasters and humanitarian crises.
- **Net Security Provider:** A country that contributes proactively to regional peace, stability, and maritime security.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **Indian Coast Guard** was established under the **Coast Guard Act, 1978**.
2. The **Exclusive Economic Zone (EEZ)** extends up to **200 nautical miles** from a coastal state's baseline under **UNCLOS**.
3. **SAGAR** stands for **Security and Growth for All in the Region**.

Which of the statements given above is/are correct?

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

Answer: (d)

2. CCI IMPOSES PENALTY ON HP INDIA AND CERTAIN RESELLERS FOR ANTI-COMPETITIVE PRACTICES IN SUPPLY OF 'SUPPLIES' PRODUCTS



- The CCI found that HP India and certain resellers had entered into arrangements that restricted competition in the market for printer supplies.
- The anti-competitive conduct involved practices that limited the ability of resellers to compete independently, thereby affecting market competition.
- Such arrangements can lead to reduced consumer choice, higher prices, and barriers to fair market access.
- The Commission imposed monetary penalties and directed the parties to cease and desist from anti-competitive conduct.
- The order underscores the importance of maintaining competitive markets and preventing restrictive trade practices.
- It also serves as a deterrent against businesses engaging in agreements that adversely affect competition.
- The decision strengthens confidence in India's competition law enforcement framework.
- It highlights the role of CCI in promoting market efficiency and consumer welfare.

BACKGROUND / CONTEXT

Competition Commission of India (CCI)

- Established under the **Competition Act, 2002**.
- Became fully operational in **2009**.
- Objective:
 - Prevent practices having an adverse effect on competition.
 - Promote and sustain competition.
 - Protect consumer interests.
 - Ensure freedom of trade.

Competition Act, 2002

The Act addresses:

- **Anti-competitive agreements** (Section 3).
- **Abuse of dominant position** (Section 4).
- **Regulation of combinations (mergers and acquisitions)** (Sections 5 & 6).

Anti-Competitive Agreements

These include agreements that:

- Fix prices.
- Limit production or supply.
- Allocate markets.
- Rig bids.
- Impose certain vertical restrictions that cause an appreciable adverse effect on competition.

Vertical Agreements

- Agreements between enterprises operating at different levels of the supply chain (e.g., manufacturer and distributor/reseller).
- They are assessed under **Section 3(4)** of the Competition Act to determine whether they cause an appreciable adverse effect on competition.

KEY HIGHLIGHTS

- **Regulator:** Competition Commission of India (CCI).
- **Company:** HP India and certain resellers.
- **Issue:** Anti-competitive practices in the supply of printer supplies products.



- **Legal Framework:** Competition Act, 2002.
- **Objective of CCI Action:** Protect competition, consumer interests, and market efficiency.
- **Economic Significance:** Promotes fair pricing, innovation, and efficient markets.
- **Consumer Significance:** Ensures greater consumer choice and prevents unfair market restrictions.
- **Challenges:** Detecting complex anti-competitive arrangements, especially in digital and technology markets.
- **Way Forward:** Strengthen competition compliance, enhance market surveillance, encourage fair business practices, and increase awareness of competition law among businesses.

PRELIMS BOOSTER BOX

- **Competition Commission of India (CCI):** Statutory body established under the **Competition Act, 2002**.
- **Competition Act, 2002:** Replaced the **Monopolies and Restrictive Trade Practices (MRTP) Act, 1969**.
- **Section 3:** Deals with anti-competitive agreements.
- **Section 3(4):** Covers vertical agreements (e.g., manufacturer–distributor arrangements).
- **Section 4:** Deals with abuse of dominant position.
- **Sections 5 & 6:** Regulate combinations (mergers, acquisitions, and amalgamations).
- **Appreciable Adverse Effect on Competition (AAEC):** The legal test used to assess whether an agreement harms competition in the market.
- **Vertical Agreement:** Agreement between enterprises at different stages of the production or distribution chain.
- **Consumer Welfare:** A primary objective of competition law, ensuring fair prices, quality, innovation, and choice.

- **Market Competition:** Encourages efficiency, innovation, and economic growth while preventing monopolistic or restrictive practices.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **Competition Commission of India (CCI)** was established under the **Competition Act, 2002**.
2. **Section 3** of the Competition Act deals with **anti-competitive agreements**.
3. **Section 4** of the Competition Act deals with the **abuse of dominant position**.

Which of the statements given above is/are correct?

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

Answer: (d)

3. HINDI RESPECTS THE EXISTENCE OF DIVERSE LANGUAGES AND BINDS EVERYONE IN A COMMON THREAD OF UNITY: SHRI GAJENDRA SINGH SHEKHAWAT



- Hindi was described as a language that promotes national integration while respecting the existence and growth of all Indian languages.



- The emphasis was on strengthening **multilingualism**, rather than replacing or diminishing regional languages.
- India's linguistic diversity is viewed as an important component of its cultural and civilizational heritage.
- The statement aligns with the **National Education Policy (NEP) 2020**, which promotes multilingual education and the use of Indian languages.
- Promoting Indian languages contributes to cultural preservation, knowledge dissemination, and inclusive development.
- The Constitution provides safeguards for linguistic minorities and recognizes multiple Indian languages.
- Language is regarded as a medium for strengthening national unity while preserving regional identities.
- The initiative supports wider use of Indian languages in education, governance, technology, and cultural exchange.

BACKGROUND / CONTEXT

Constitutional Provisions on Language

- Article 343**
 - A. Declares **Hindi in Devanagari script** as the **Official Language of the Union**.
 - B. Provides for the continued use of English for official purposes as prescribed by law.
- Article 344**
 - A. Provides for the constitution of the **Official Language Commission** and a Parliamentary Committee on Official Language.
- Articles 345–347**
 - A. Empower States to adopt one or more official languages.
 - B. Provide safeguards relating to language use within States.
- Article 348**

- A. Specifies that proceedings in the **Supreme Court, High Courts**, and authoritative texts of Central laws are generally in **English**, unless Parliament provides otherwise.

V. **Article 350A**

- A. Directs States to provide adequate facilities for instruction in the mother tongue at the primary stage for children belonging to linguistic minority groups.

VI. **Article 350B**

- A. Provides for the **Special Officer for Linguistic Minorities**.

VII. **Article 351**

- A. Directs the Union to promote the spread and development of Hindi while enriching it by drawing upon other Indian languages.

Eighth Schedule

- Recognizes **22 Scheduled Languages**.
- These languages receive constitutional recognition and support for their development.

National Education Policy (NEP) 2020

- Promotes:
 - A. Multilingualism.
 - B. Mother tongue/local language in education.
 - C. Preservation and promotion of Indian languages.
 - D. Development of Indian languages through technology and research.

KEY HIGHLIGHTS

- **Theme:** Hindi as a unifying language while respecting linguistic diversity.
- **Constitutional Basis:** Articles **343–351** and the **Eighth Schedule**.
- **Policy Alignment:** National Education Policy (NEP) 2020.



- **Cultural Significance:** Preserves India's multilingual heritage and promotes unity in diversity.
- **Educational Significance:** Encourages learning in the mother tongue and multilingual education.
- **Governance Significance:** Supports inclusive communication and wider citizen participation.
- **Challenges:** Balancing promotion of Hindi with protection and development of regional and tribal languages.
- **Way Forward:** Strengthen multilingual education, digitize Indian language resources, promote translation and language technologies, and ensure equal opportunities for all Indian languages.

PRELIMS BOOSTER BOX

- **Article 343:** Hindi in Devanagari script is the Official Language of the Union.
- **Article 344:** Official Language Commission and Parliamentary Committee on Official Language.
- **Articles 345–347:** Official languages of States and safeguards relating to languages.
- **Article 348:** Language of the Supreme Court, High Courts, and authoritative texts of Central laws.
- **Article 350A:** Instruction in the mother tongue at the primary stage for linguistic minorities.
- **Article 350B:** Special Officer for Linguistic Minorities.
- **Article 351:** Directive for the development and promotion of Hindi while drawing upon other Indian languages.
- **Eighth Schedule:** Recognizes **22 Scheduled Languages**.
- **NEP 2020:** Promotes multilingualism and education in Indian languages.
- **Official Language vs National Language:** The Constitution of India does not declare any language as the "National Language." Hindi is the **Official Language of the Union**, while

English continues to be used for official purposes as provided by law.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. **Article 343** declares Hindi in the Devanagari script as the **Official Language of the Union**.
2. **Article 351** directs the Union to promote the spread and development of Hindi while enriching it by drawing upon other Indian languages.
3. The **Constitution of India declares Hindi as the National Language of India**.

Which of the statements given above is/are correct?

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

Answer: (a)

4. NSFDC'S CONCESSIONAL CREDIT SCHEMES BOOST ENTREPRENEURSHIP AND SOCIO-ECONOMIC EMPOWERMENT OF SCHEDULED CASTES



- NSFDC provides **concessional loans** to eligible Scheduled Caste beneficiaries for self-employment and income-generating activities.



- The schemes support entrepreneurship in sectors such as agriculture, transport, trade, manufacturing, services, and small businesses.
- Financial assistance is routed through **State Channelizing Agencies (SCAs)**, banks, Regional Rural Banks (RRBs), and other implementing agencies.
- Besides credit support, NSFDC also promotes **skill development**, entrepreneurship training, and capacity building.
- The schemes aim to reduce poverty, generate employment, and improve the socio-economic status of Scheduled Castes.
- Special emphasis is placed on supporting **women entrepreneurs**, youth, and marginalized communities.
- The initiative aligns with the Government's objectives of **social justice, financial inclusion, and inclusive growth**.
- By facilitating access to affordable finance, NSFDC helps beneficiaries become self-reliant and economically empowered.

BACKGROUND / CONTEXT

National Scheduled Castes Finance and Development Corporation (NSFDC)

- **Established: 1989.**
- **Administrative Ministry: Ministry of Social Justice and Empowerment.**
- A **Government of India** enterprise (Section 8 company under the Companies Act).
- **Objective:** Promote economic development of Scheduled Castes through concessional finance, skill development, and entrepreneurship support.

Objectives

- Provide concessional credit for self-employment.
- Promote entrepreneurship among Scheduled Castes.

- Facilitate skill development and entrepreneurship training.
- Improve income generation and livelihoods.
- Reduce socio-economic disparities.

Major Areas of Assistance

- Agriculture and allied activities.
- Transport sector.
- Small businesses.
- Manufacturing.
- Services.
- Micro and small enterprises.
- Education loans.
- Skill development programmes.

KEY HIGHLIGHTS

- **Institution:** National Scheduled Castes Finance and Development Corporation (NSFDC).
- **Established: 1989.**
- **Administrative Ministry:** Ministry of Social Justice and Empowerment.
- **Target Group:** Eligible Scheduled Caste beneficiaries.
- **Nature of Assistance:** Concessional credit, entrepreneurship promotion, skill development, and self-employment support.
- **Economic Significance:** Enhances financial inclusion, employment generation, and entrepreneurship.
- **Social Significance:** Promotes social justice and economic empowerment of marginalized communities.
- **Challenges:** Credit awareness, timely loan disbursement, market access, and enterprise sustainability.
- **Way Forward:** Expand digital loan delivery, strengthen entrepreneurship mentoring, improve market linkages, integrate with skill development initiatives, and enhance financial literacy among beneficiaries.

PRELIMS BOOSTER BOX

- **NSFDC:** National Scheduled Castes Finance and Development Corporation.
- **Established:** 1989.
- **Administrative Ministry:** Ministry of Social Justice and Empowerment.
- **Legal Status:** Section 8 company under the **Companies Act, 2013** (originally incorporated under the Companies Act, 1956; it now continues under the 2013 Act).
- **Target Beneficiaries:** Scheduled Castes.
- **State Channelizing Agencies (SCAs):** State-level agencies through which NSFDC implements most of its schemes.
- **Concessional Credit:** Loans provided at interest rates lower than prevailing market rates.
- **Financial Inclusion:** Ensuring access to affordable financial services for all sections of society.
- **Entrepreneurship Development:** Programmes that support enterprise creation through finance, training, and market linkages.
- **Article 46:** Directive Principle directing the State to promote the educational and economic interests of **Scheduled Castes, Scheduled Tribes, and other weaker sections** and protect them from social injustice and exploitation.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **National Scheduled Castes Finance and Development Corporation (NSFDC)** functions under the **Ministry of Social Justice and Empowerment**.
2. NSFDC provides **concessional credit** to eligible Scheduled Caste beneficiaries for self-employment and entrepreneurship.
3. **Article 46** of the Constitution directs the State to promote the educational and economic interests of Scheduled Castes and other weaker sections.

Which of the statements given above is/are correct?

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

Answer: (d)

5. SIGNIFICANT SUCCESS IN PROMOTING ENTREPRENEURSHIP, SELF-EMPLOYMENT AND SOCIO-ECONOMIC EMPOWERMENT OF ELIGIBLE SC PERSONS THROUGH CONCESSIONAL CREDIT-BASED SCHEMES OF NSFDC



- NSFDC provides **concessional loans** to eligible Scheduled Caste beneficiaries for self-employment and income-generating activities.
- Financial assistance supports sectors such as agriculture, transport, manufacturing, trade, services, and micro-enterprises.
- Loans are routed through **State Channelizing Agencies (SCAs)**, banks, Regional Rural Banks (RRBs), and other implementing agencies.
- Apart from credit, NSFDC offers **skill development**, entrepreneurship training, financial literacy, and capacity-building programmes.



- Special emphasis is placed on supporting **women entrepreneurs**, youth, and other marginalized sections within the Scheduled Castes.
- The schemes help reduce poverty, create employment opportunities, and improve beneficiaries' income levels.
- The initiative advances the constitutional goal of **social justice** and promotes inclusive economic growth.
- It contributes to building self-reliance among Scheduled Caste entrepreneurs.

BACKGROUND / CONTEXT

National Scheduled Castes Finance and Development Corporation (NSFDC)

- **Established: 1989.**
- **Administrative Ministry: Ministry of Social Justice and Empowerment.**
- A **Government of India enterprise (Section 8 Company).**
- **Objective:** Promote economic development of Scheduled Castes through concessional finance, entrepreneurship, and skill development.

Major Areas of Assistance

- Agriculture and allied activities.
- Transport sector.
- Manufacturing.
- Trade and commerce.
- Service sector.
- Micro and small enterprises.
- Education loans.
- Skill development programmes.

Objectives

- Promote entrepreneurship.
- Facilitate access to affordable institutional credit.
- Enhance self-employment opportunities.
- Improve socio-economic conditions.

- Encourage sustainable livelihoods.

KEY HIGHLIGHTS

- **Institution:** National Scheduled Castes Finance and Development Corporation (NSFDC).
- **Established:** 1989.
- **Administrative Ministry:** Ministry of Social Justice and Empowerment.
- **Target Beneficiaries:** Eligible Scheduled Caste persons.
- **Nature of Assistance:** Concessional credit, entrepreneurship promotion, skill development, and self-employment support.
- **Economic Significance:** Enhances entrepreneurship, employment generation, and financial inclusion.
- **Social Significance:** Promotes social justice, economic empowerment, and inclusive development.
- **Challenges:** Limited awareness, delays in credit delivery, market access constraints, and enterprise sustainability.
- **Way Forward:** Expand digital loan delivery, strengthen entrepreneurship mentoring, improve market linkages, integrate with Skill India and MSME initiatives, and enhance financial literacy among beneficiaries.

PRELIMS BOOSTER BOX

- **NSFDC:** National Scheduled Castes Finance and Development Corporation.
- **Established:** 1989.
- **Administrative Ministry:** Ministry of Social Justice and Empowerment.
- **Legal Status:** Section 8 Company under the Companies Act.
- **State Channelizing Agencies (SCAs):** Primary state-level agencies implementing NSFDC schemes.
- **Concessional Credit:** Loans provided at interest rates lower than prevailing market rates.



- **Article 46:** Directs the State to promote the educational and economic interests of **Scheduled Castes, Scheduled Tribes, and other weaker sections**, and protect them from social injustice and exploitation.
- **Article 338:** Provides for the **National Commission for Scheduled Castes (NCSC)**.
- **Financial Inclusion:** Ensuring access to affordable financial services for all sections of society.
- **Entrepreneurship Development:** Promotion of enterprise creation through finance, training, and market support.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **National Scheduled Castes Finance and Development Corporation (NSFDC)** functions under the **Ministry of Social Justice and Empowerment**.
2. NSFDC provides **concessional credit** and entrepreneurship support to eligible Scheduled Caste beneficiaries.
3. **Article 46** of the Constitution directs the State to promote the educational and economic interests of Scheduled Castes, Scheduled Tribes, and other weaker sections.

Which of the statements given above is/are correct?

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

Answer: (d)

1. INDIA–AUSTRALIA CIVIL NUCLEAR COOPERATION



- India and Australia cooperate in the peaceful uses of nuclear energy under the **India–Australia Civil Nuclear Cooperation Agreement**.
- Australia supplies **uranium** to India for use in **civilian nuclear power reactors** under international safeguards.
- The partnership contributes to India's long-term **energy security**, diversification of fuel sources, and transition to low-carbon energy.
- Cooperation is governed by strict safeguards to ensure nuclear material is used only for peaceful purposes.
- Both countries support international nuclear safety, security, and non-proliferation frameworks while recognizing India's responsible nuclear record.
- Civil nuclear cooperation complements broader collaboration in clean energy, critical minerals, science and technology, and strategic affairs.
- The partnership strengthens bilateral relations under the **Comprehensive Strategic Partnership (CSP)**.

- It also contributes to India's objective of expanding clean energy generation while reducing dependence on fossil fuels.

BACKGROUND / CONTEXT

India–Australia Civil Nuclear Cooperation

Agreement

- **Signed: 2014.**
- **Entered into Force: 2015.**
- Enables Australia to export **uranium** to India for peaceful civilian purposes.
- Requires all supplied nuclear material to remain under **International Atomic Energy Agency (IAEA)** safeguards.

Why Australia is Important

- Australia possesses some of the **world's largest uranium reserves**.
- It is a reliable supplier of uranium for peaceful nuclear energy programmes.
- The partnership enhances India's long-term fuel security for nuclear power generation.

India's Civil Nuclear Programme

- Based on the **Three–Stage Nuclear Power Programme** proposed by **Dr. Homi J. Bhabha**:
 1. Pressurized Heavy Water Reactors (PHWRs).
 2. Fast Breeder Reactors (FBRs).
 3. Thorium-based reactors utilizing India's abundant thorium reserves.

KEY HIGHLIGHTS

- **Agreement:** India–Australia Civil Nuclear Cooperation Agreement.
- **Signed:** 2014.
- **Operational Since:** 2015.
- **Major Focus:** Peaceful use of nuclear energy and uranium supply.
- **Strategic Significance:** Strengthens the India–Australia Comprehensive Strategic Partnership.



- **Energy Significance:** Enhances fuel security and supports India's clean energy transition.
- **Environmental Significance:** Nuclear power provides low-carbon baseload electricity, aiding climate mitigation.
- **Challenges:** High capital costs, nuclear waste management, public acceptance, and ensuring robust safety standards.
- **Way Forward:** Expand cooperation in nuclear fuel supply, reactor technologies, research, nuclear safety, and clean energy innovation while strengthening international safeguards.

PRELIMS BOOSTER BOX

- **India–Australia Civil Nuclear Cooperation Agreement:** Signed in **2014**; entered into force in **2015**.
- **Comprehensive Strategic Partnership (CSP):** Established between India and Australia in **2020** to deepen cooperation across defence, trade, technology, energy, and critical minerals.
- **IAEA (International Atomic Energy Agency):** Autonomous international organization promoting the peaceful use of nuclear energy and verifying compliance with nuclear safeguards.
- **NSG (Nuclear Suppliers Group):** A multilateral export control regime that seeks to prevent nuclear proliferation while facilitating peaceful nuclear trade.
- **India–US Civil Nuclear Agreement (123 Agreement):** Signed in **2007**, paving the way for international civil nuclear cooperation with India.
- **Three–Stage Nuclear Power Programme:** Designed by **Dr. Homi J. Bhabha** to utilize India's limited uranium and abundant thorium resources.
- **PHWR (Pressurized Heavy Water Reactor):** The mainstay of India's current nuclear power generation.

- **Fast Breeder Reactor (FBR):** Produces more fissile material than it consumes, forming the second stage of India's nuclear programme.
- **Thorium:** India possesses one of the world's largest reserves of thorium, making it central to the third stage of the nuclear programme.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **India–Australia Civil Nuclear Cooperation Agreement** was signed in **2014** and entered into force in **2015**.
2. Under the agreement, Australia supplies uranium to India for use in civilian nuclear facilities subject to **IAEA safeguards**.
3. India's **Three–Stage Nuclear Power Programme** was conceived by **Dr. Homi J. Bhabha**.

Which of the statements given above is/are correct?

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

Answer: (d)

2. NEW ULTRA-SENSITIVE AMMONIA SENSOR ENABLES PORTABLE, SELF-POWERED WEARABLE DEVICES FOR TOXIC GAS DETECTION





- I. The newly developed sensor can detect **trace amounts of ammonia** with high sensitivity and rapid response.
- II. It is designed to operate as a **self-powered wearable device**, reducing dependence on external power sources.
- III. The technology has potential applications in:
 - A. Industrial safety.
 - B. Occupational health.
 - C. Environmental monitoring.
 - D. Medical diagnostics (e.g., breath analysis).
- IV. Wearable sensors can continuously monitor air quality and alert users before ammonia reaches hazardous levels.
- V. The innovation integrates **advanced nanomaterials** and flexible electronics, enabling lightweight and portable devices.
- VI. The sensor supports the growing field of **Internet of Things (IoT)**-based health and environmental monitoring.
- VII. Such technologies contribute to safer workplaces and improved public health.
- VIII. The development showcases India's progress in advanced materials, nanotechnology, and sensor research.

BACKGROUND / CONTEXT

Ammonia (NH₃)

- I. A **colourless gas** with a characteristic pungent smell.
- II. Widely used in:
 - A. Fertilizer production.
 - B. Refrigeration systems.
 - C. Chemical industries.
 - D. Pharmaceuticals.
- III. At high concentrations, ammonia is **toxic**, causing irritation to the eyes, skin, and respiratory tract and, in severe cases, life-threatening health effects.

Gas Sensors

Gas sensors detect the presence and concentration of gases in the environment.

Applications include:

- Industrial safety.
- Air quality monitoring.
- Healthcare diagnostics.
- Smart wearables.
- Environmental surveillance.

Self-Powered Sensors

- Generate the required electrical energy from the environment or body movements (e.g., piezoelectric or triboelectric effects).
- Eliminate or reduce the need for conventional batteries.

KEY HIGHLIGHTS

- **Innovation:** Ultra-sensitive ammonia gas sensor.
- **Technology:** Wearable, flexible, self-powered sensing device.
- **Applications:** Industrial safety, healthcare, environmental monitoring, and IoT-enabled smart systems.
- **Scientific Significance:** Advances nanotechnology, flexible electronics, and sensor engineering.
- **Health Significance:** Enables early detection of toxic ammonia exposure and improves workplace safety.
- **Economic Significance:** Supports indigenous development of advanced sensing technologies and wearable electronics.
- **Challenges:** Large-scale manufacturing, long-term durability, calibration, and cost-effective commercialization.
- **Way Forward:** Improve sensor stability, integrate with AI and IoT platforms, expand detection to multiple hazardous gases, and promote commercialization through industry-research collaboration.

PRELIMS BOOSTER BOX

- **Ammonia (NH₃):** A colourless, pungent, alkaline gas widely used in fertilizer production and industrial processes.
- **Nanotechnology:** Manipulation of materials at the nanoscale (1–100 nanometres) to achieve enhanced physical and chemical properties.
- **Wearable Electronics:** Smart electronic devices designed to be worn on the body for continuous monitoring or communication.
- **Internet of Things (IoT):** A network of interconnected devices that collect, exchange, and process data over the internet.
- **Flexible Electronics:** Electronic circuits fabricated on flexible substrates, allowing bending and stretching.
- **Piezoelectric Effect:** Generation of electrical charge in response to mechanical stress.
- **Triboelectric Effect:** Generation of electrical charge through friction or contact between different materials.
- **Gas Sensor:** A device that detects and measures the concentration of specific gases in the environment.
- **Occupational Safety:** Measures adopted to protect workers from hazards in the workplace.
- **Environmental Monitoring:** Continuous observation and measurement of environmental parameters such as air, water, and soil quality.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. **Ammonia (NH₃)** is a colourless gas with a pungent odour and is widely used in fertilizer production.
2. **Self-powered sensors** can generate the electrical energy required for operation from ambient sources or body movements.
3. **Nanotechnology** deals with the manipulation of materials typically in the size range of **1–100 nanometres**.

Which of the statements given above is/are correct?

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

Answer: (d)

3. NESAC'S SPACE-BASED APPLICATIONS STRENGTHEN BORDER MANAGEMENT AND DRIVE DEVELOPMENT ACROSS THE NORTHEAST



- NESAC utilizes **satellite remote sensing, Geographic Information Systems (GIS), Global Navigation Satellite Systems (GNSS), and communication technologies** to support governance and development in the Northeast.
- Space-based applications assist in **border area mapping**, infrastructure planning, and monitoring of strategic regions.
- NESAC provides crucial support for **disaster management**, including flood forecasting, landslide monitoring, forest fire detection, and damage assessment.
- The Centre contributes to agriculture, water resource management, forestry, urban planning, and environmental conservation through geospatial technologies.



- It supports planning and implementation of developmental projects in the Northeastern States by providing geospatial decision-support systems.
- Space-based data also aid in improving connectivity, infrastructure development, and climate resilience in the region.
- The initiative reflects India's growing use of space technology for governance and sustainable development.
- NESAC's work aligns with the vision of leveraging space technology for **national security, regional development**, and **Atmanirbhar Bharat**.

BACKGROUND / CONTEXT

North Eastern Space Applications Centre (NESAC)

- **Established: 2000.**
- **Location: Shillong, Meghalaya.**
- A **joint initiative** of the **Indian Space Research Organisation (ISRO)** and the **North Eastern Council (NEC)**.
- Functions as a regional centre for the application of space technology in the Northeastern States.

Major Areas of Work

- Remote sensing.
- Geographic Information Systems (GIS).
- Satellite communication.
- Disaster risk reduction.
- Agriculture and horticulture.
- Forestry and biodiversity.
- Water resources.
- Infrastructure planning.
- Border area management.
- Climate and environmental monitoring.

Key Technologies

- **Remote Sensing:** Collection of information about Earth's surface using satellite or airborne sensors.
- **GIS (Geographic Information System):** Computer-based system for capturing, storing, analyzing, and displaying spatial data.
- **GNSS (Global Navigation Satellite System):** Satellite-based navigation systems such as **NavIC**, GPS, Galileo, and GLONASS.

KEY HIGHLIGHTS

- **Institution:** North Eastern Space Applications Centre (NESAC).
- **Established:** 2000.
- **Location:** Shillong, Meghalaya.
- **Parent Organisations:** ISRO and North Eastern Council (NEC).
- **Primary Objective:** Apply space technology for governance, border management, disaster management, and sustainable development in Northeast India.
- **Strategic Significance:** Strengthens border surveillance, infrastructure planning, and national security.
- **Developmental Significance:** Supports agriculture, water management, urban planning, and environmental conservation.
- **Challenges:** Difficult terrain, extreme weather conditions, data integration, and last-mile implementation.
- **Way Forward:** Expand high-resolution geospatial mapping, strengthen AI-enabled geospatial analytics, integrate **NavIC**-based services, enhance inter-agency coordination, and promote capacity building in geospatial technologies.

PRELIMS BOOSTER BOX

- **NESAC:** North Eastern Space Applications Centre.
- **Established: 2000.**



- **Location: Shillong, Meghalaya.**
- **Joint Initiative: Indian Space Research Organisation (ISRO) and North Eastern Council (NEC).**
- **Remote Sensing:** Acquisition of information about Earth's surface without physical contact, primarily through satellites or aircraft.
- **GIS (Geographic Information System):** Technology used for collection, analysis, and visualization of spatial and geographic data.
- **GNSS:** Global Navigation Satellite System.
- **NavIC (Navigation with Indian Constellation):** India's indigenous regional satellite navigation system developed by **ISRO**, providing positioning, navigation, and timing services over India and surrounding regions.
- **North Eastern Council (NEC):** A statutory regional planning body established under the **North Eastern Council Act, 1971**, functioning under the **Ministry of Development of North Eastern Region (MDoNER)**.
- **Geospatial Technology:** Technologies such as remote sensing, GIS, and satellite navigation used for mapping, planning, monitoring, and decision-making.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **North Eastern Space Applications Centre (NESAC)** is a joint initiative of **ISRO** and the **North Eastern Council (NEC)**.
2. **NavIC** is India's indigenous regional satellite navigation system.
3. **Remote sensing** involves collecting information about the Earth's surface without making physical contact with it.

Which of the statements given above is/are correct?

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

Answer: (d)

4. MINISTRY OF MINES TO LAUNCH EIGHTH TRANCHE OF AUCTION OF CRITICAL AND STRATEGIC MINERAL BLOCKS



- I. The **8th Tranche** includes **20 mineral blocks**, comprising **13 newly identified blocks** and **7 blocks re-auctioned** after previous attempts.
- II. The mineral portfolio includes:
 - A. **Lithium**
 - B. **Rare Earth Elements (REEs)**
 - C. **Graphite**
 - D. **Molybdenum**
 - E. **Vanadium**
 - F. **Gallium**
 - G. **Titanium**
 - H. **Tungsten**
 - I. **Phosphorite**
 - J. **Potash**
 - K. **Cesium**
 - L. **Rubidium**
 - M. **Glaucanite**
- III. These minerals are essential for:
 - A. Electric vehicles (EVs)
 - B. Renewable energy technologies
 - C. Battery manufacturing
 - D. Defence systems
 - E. Electronics and semiconductors
 - F. Fertilizer production



- G. Aerospace and advanced manufacturing.
- IV. With the completion of seven auction tranches, **56 out of 88** critical and strategic mineral blocks offered have been successfully auctioned, reflecting growing investor confidence.
- V. During **FY 2025–26**, the Ministry achieved a record by auctioning **212 mineral blocks**, including **22 critical and strategic mineral blocks**—the highest in any financial year since the auction regime began.
- VI. Recent amendments to the **Mineral (Auction) Rules, 2026** simplify timelines, improve flexibility in lease execution, and provide faster refunds where auctions are annulled, thereby improving ease of doing business.

BACKGROUND / CONTEXT

Critical Minerals

Critical minerals are minerals that are:

- Essential for economic development and national security.
- Vulnerable to supply chain disruptions.
- Difficult to substitute.

National Critical Mineral Mission (NCMM)

- I. Aims to:
 - A. Secure domestic availability of critical minerals.
 - B. Promote exploration and mining.
 - C. Reduce import dependence.
 - D. Strengthen mineral processing and recycling.
 - E. Support clean energy and strategic industries.

Auction of Mineral Blocks

- Conducted under the **Mines and Minerals (Development and Regulation) Act, 1957 (MMDR Act)**.

- Auctions are undertaken through a **transparent online competitive bidding process**.
- Intended to ensure efficient allocation of mineral resources while maximizing revenue and promoting private investment.

KEY HIGHLIGHTS

- **Event:** Eighth Tranche of Critical and Strategic Mineral Block Auctions.
- **Implementing Ministry:** Ministry of Mines.
- **Blocks Offered:** 20 across **nine States**.
- **Minerals Covered:** Lithium, REEs, Graphite, Tungsten, Gallium, Titanium, Vanadium, Potash, Phosphorite, Cesium, Rubidium, Molybdenum, and Glauconite.
- **Strategic Significance:** Strengthens India's critical mineral security and supply chains.
- **Economic Significance:** Supports EVs, renewable energy, semiconductors, defence manufacturing, and industrial growth.
- **Environmental Significance:** Facilitates the clean energy transition through secure access to battery and renewable energy minerals.
- **Challenges:** Exploration risks, environmental clearances, technology gaps, and dependence on imported processing technologies.
- **Way Forward:** Accelerate exploration, strengthen domestic mineral processing and recycling, encourage private investment, diversify global supply chains, and deepen international partnerships for critical minerals.

PRELIMS BOOSTER BOX

- **Critical Minerals:** Minerals essential for economic security, strategic industries, and clean energy with high supply risk.
- **National Critical Mineral Mission (NCMM):** Aims to secure India's critical mineral value chain through exploration, mining, processing, recycling, and overseas partnerships.
- **MMDR Act, 1957:** Governs regulation and development of mines and minerals in India.



- **Mineral (Auction) Rules, 2026:** Streamline auction procedures and improve ease of doing business.
- **Lithium:** Key mineral for rechargeable batteries used in EVs and energy storage systems.
- **Rare Earth Elements (REEs):** A group of 17 elements essential for electronics, magnets, defence equipment, and renewable energy technologies.
- **Graphite:** Critical anode material in lithium-ion batteries.
- **Gallium:** Used in semiconductors, LEDs, and advanced electronics.
- **Tungsten:** High-strength metal used in defence, aerospace, and industrial tools.
- **Vanadium:** Used in high-strength steel alloys and vanadium redox flow batteries.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. Critical minerals are those that are essential for economic security and are vulnerable to supply disruptions.
2. The auction of mineral blocks in India is conducted under the **Mines and Minerals (Development and Regulation) Act, 1957**.
3. Lithium, Graphite, and Rare Earth Elements are considered important for electric vehicle batteries and clean energy technologies.

Which of the statements given above is/are correct?

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

Answer: (d)

5. 'SCALING URBAN CLIMATE RESILIENCE: THE CAPACITIES LEGACY AND WAY FORWARD'



- The **CapaCITIES Programme** focused on enhancing the institutional and technical capacities of urban local bodies (ULBs) to address climate change challenges.
- It supported cities in preparing climate-resilient urban plans through improved planning, risk assessment, and data-driven decision-making.
- The programme promoted sustainable urban development by encouraging climate-resilient infrastructure, green mobility, and nature-based solutions.
- Capacity-building initiatives included training of urban officials, knowledge sharing, and adoption of best practices in climate governance.
- It emphasized integrating climate considerations into city master plans and development projects.
- The programme contributed to strengthening disaster preparedness, reducing climate risks, and improving urban resilience.
- The event also discussed the future roadmap for scaling climate resilience across Indian cities.

- These efforts align with India's commitments under the **Paris Agreement** and the **Sustainable Development Goals (SDGs)**.

BACKGROUND / CONTEXT

Urban Climate Resilience

Urban climate resilience refers to the ability of cities to:

- Prepare for climate-related risks.
- Absorb and recover from climate shocks.
- Adapt to long-term climate change.
- Sustain essential services and infrastructure.

CapaCITIES Programme

- I. A capacity-building initiative aimed at integrating climate resilience into urban governance and planning.
- II. Focuses on:
 - A. Institutional strengthening.
 - B. Climate-sensitive urban planning.
 - C. Knowledge sharing.
 - D. Capacity development of Urban Local Bodies (ULBs).

Related Government Initiatives

National Mission on Sustainable Habitat (NMSH)

- I. One of the **eight missions** under the **National Action Plan on Climate Change (NAPCC)**.
- II. Promotes:
 - A. Sustainable urban planning.
 - B. Energy-efficient buildings.
 - C. Public transport.
 - D. Waste management.

Smart Cities Mission

- Promotes sustainable, technology-driven, and citizen-centric urban development.

AMRUT 2.0

- Focuses on universal water supply, sewerage, and urban infrastructure with an emphasis on sustainability.

KEY HIGHLIGHTS

- **Event:** Scaling Urban Climate Resilience: The CapaCITIES Legacy and Way Forward.
- **Focus:** Strengthening climate resilience in Indian cities.
- **Primary Objective:** Build institutional capacity for climate-responsive urban governance.
- **Environmental Significance:** Improves climate adaptation, disaster resilience, and sustainable urban ecosystems.
- **Governance Significance:** Enhances planning, inter-agency coordination, and evidence-based decision-making.
- **Economic Significance:** Reduces climate-related losses and supports sustainable urban growth.
- **Challenges:** Rapid urbanization, financing gaps, limited technical capacity, and increasing climate risks.
- **Way Forward:** Mainstream climate resilience into urban planning, expand capacity-building programmes, promote nature-based solutions, leverage climate finance, and strengthen data-driven governance.

PRELIMS BOOSTER BOX

- **Urban Climate Resilience:** The ability of cities to anticipate, prepare for, adapt to, and recover from climate-related shocks and stresses.
- **Urban Local Bodies (ULBs):** Institutions of urban self-government constituted under the **74th Constitutional Amendment Act, 1992**.
- **74th Constitutional Amendment Act, 1992:** Granted constitutional status to municipalities and strengthened urban local governance.
- **National Mission on Sustainable Habitat (NMSH):** One of the **eight missions** under the **National Action Plan on Climate Change (NAPCC)**.
- **National Action Plan on Climate Change (NAPCC):** Launched in **2008**, comprising eight national missions to address climate change.



- **Smart Cities Mission:** Launched in **2015** to promote sustainable and smart urban development.
- **AMRUT 2.0:** Focuses on water security, sewerage, and sustainable urban infrastructure.
- **Nature-based Solutions (Nbs):** Actions that protect, restore, or sustainably manage ecosystems to address societal challenges such as climate change while benefiting biodiversity and human well-being.
- **Paris Agreement (2015):** International treaty under the **UNFCCC** aimed at limiting global warming and strengthening climate resilience.
- **SDG 11: Sustainable Cities and Communities**—promotes inclusive, safe, resilient, and sustainable urban development.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

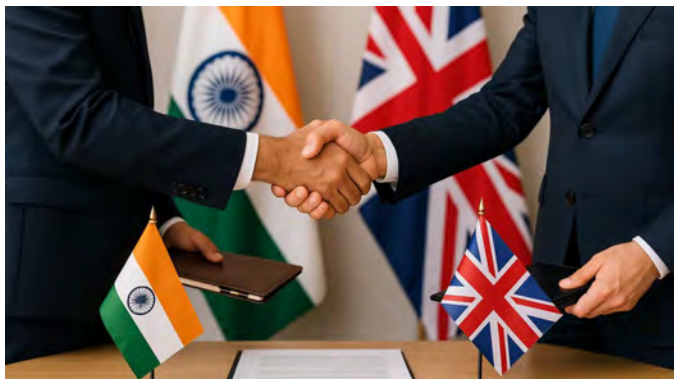
1. The **National Mission on Sustainable Habitat (NMSH)** is one of the **eight missions** under the **National Action Plan on Climate Change (NAPCC)**.
2. The **74th Constitutional Amendment Act, 1992** provides the constitutional framework for **Urban Local Bodies (ULBs)**.
3. **Nature-based Solutions (Nbs)** involve protecting, restoring, or sustainably managing ecosystems to address challenges such as climate change.

Which of the statements given above is/are correct?

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

Answer: (d)

1. INDIA-UK COMPREHENSIVE ECONOMIC AND TRADE AGREEMENT (CETA) COMES INTO EFFECT



- The India-UK CETA provides preferential market access for goods and services, facilitating greater bilateral trade and investment.
- It aims to reduce or eliminate tariffs on a wide range of products, making exports more competitive.
- The agreement promotes cooperation in sectors such as information technology, financial services, professional services, pharmaceuticals, textiles, automobiles, education, and clean energy.
- It enhances opportunities for Indian professionals and businesses through improved mobility and easier access to the UK market, subject to the agreed provisions.
- The agreement seeks to strengthen resilient supply chains, encourage innovation, and support MSMEs in accessing international markets.
- It includes provisions to promote transparent trade practices, regulatory cooperation, and sustainable economic growth.
- CETA is expected to generate employment, boost exports, attract investment, and deepen economic integration between India and the UK.

- The agreement reinforces India's strategy of expanding high-quality trade partnerships with major global economies.

BACKGROUND / CONTEXT

India-UK Comprehensive Economic and Trade Agreement (CETA)

- I. A comprehensive bilateral trade agreement covering:
 - A. Trade in goods.
 - B. Trade in services.
 - C. Investment.
 - D. Digital trade.
 - E. Intellectual Property Rights (IPR).
 - F. Government procurement.
 - G. Customs cooperation.
 - H. MSME cooperation.
- II. Seeks to enhance bilateral economic integration and facilitate easier movement of trade and investment.

India-UK Economic Relations

- I. The UK is one of India's major trading and investment partners.
- II. Cooperation extends to:
 - A. Trade and investment.
 - B. Defence and security.
 - C. Education and research.
 - D. Science and technology.
 - E. Climate action.
 - F. Innovation and critical technologies.

Comprehensive Strategic Partnership (CSP)

- Established in **2021**.
- Provides the framework for deeper cooperation across trade, defence, technology, climate, and people-to-people ties.

KEY HIGHLIGHTS

- **Agreement:** India-UK Comprehensive Economic and Trade Agreement (CETA).



- **Partner Countries:** India and the United Kingdom.
- **Primary Objective:** Expand bilateral trade, investment, and economic cooperation.
- **Economic Significance:** Enhances exports, investment flows, employment generation, and supply chain resilience.
- **Strategic Significance:** Strengthens the India-UK Comprehensive Strategic Partnership.
- **Business Significance:** Improves market access and creates opportunities for MSMEs and service providers.
- **Challenges:** Effective implementation, regulatory harmonization, addressing non-tariff barriers, and ensuring benefits for sensitive sectors.
- **Way Forward:** Maximize utilization of tariff concessions, strengthen export competitiveness, support MSMEs, deepen innovation partnerships, and monitor effective implementation of the agreement.

PRELIMS BOOSTER BOX

- **CETA:** Comprehensive Economic and Trade Agreement.
- **Free Trade Agreement (FTA):** An agreement between countries to reduce or eliminate tariffs and other trade barriers while facilitating trade and investment.
- **Tariff:** A tax imposed on imported goods.
- **Non-Tariff Barriers (NTBs):** Trade restrictions other than tariffs, such as technical standards, quotas, and licensing requirements.
- **Rules of Origin (RoO):** Criteria used to determine the national source of a product for preferential tariff treatment.
- **MSMEs:** Micro, Small and Medium Enterprises, which play a vital role in employment generation and exports.
- **Comprehensive Strategic Partnership (CSP):** Framework launched in 2021 to deepen India-UK cooperation across multiple sectors.

- **Balance of Trade:** Difference between the value of a country's exports and imports.
- **Trade in Services:** Cross-border exchange of services such as IT, finance, education, tourism, and healthcare.
- **WTO (World Trade Organization):** International organization that regulates global trade rules and promotes free and fair trade.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. A **Comprehensive Economic and Trade Agreement (CETA)** may cover trade in goods, services, investment, and other areas of economic cooperation.
2. **Rules of Origin** determine whether a product qualifies for preferential tariff treatment under a trade agreement.
3. **Non-Tariff Barriers (NTBs)** include quotas, technical standards, and licensing requirements.

Which of the statements given above is/are correct?

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

Answer: (d)

2. ATAL INNOVATION MISSION SPEARHEADS INDIA'S FRONTIER INNOVATION PUSH AT REGIONAL AIM SUMVAAD – NORTH EAST CHAPTER 2026



- **AIM SUMVAAD – North East Chapter 2026** served as a platform for dialogue among startups, incubators, educational institutions, investors, and government agencies.
- The event focused on promoting **frontier technologies** such as Artificial Intelligence (AI), Robotics, Internet of Things (IoT), Biotechnology, Space Technology, and Deep Tech.
- It highlighted the importance of innovation-led economic growth and entrepreneurship in the Northeastern States.
- Discussions emphasized strengthening startup incubation, mentoring, access to finance, and industry-academia collaboration.
- The programme showcased successful innovations emerging from the region and encouraged youth participation in entrepreneurship.
- The initiative supports capacity building through **Atal Tinkering Labs (ATLs)** and **Atal Incubation Centres (AICs)**.

- It aligns with the Government's vision of **Viksit Bharat, Startup India, Digital India**, and **Atmanirbhar Bharat**.
- The event reinforced the role of innovation in generating employment, solving local challenges, and driving sustainable regional development.

BACKGROUND / CONTEXT

Atal Innovation Mission (AIM)

- **Launched: 2016.**
- **Implemented by: NITI Aayog.**
- Flagship initiative to promote a culture of **innovation and entrepreneurship** across India.

Objectives

- Foster innovation in schools, universities, and startups.
- Build a vibrant startup ecosystem.
- Support incubation and entrepreneurship.
- Promote problem-solving using emerging technologies.
- Encourage collaboration between academia, industry, and government.

Major Components

- **Atal Tinkering Labs (ATLs):** Innovation workspaces in schools to promote STEM education and design thinking.
- **Atal Incubation Centres (AICs):** Support startups through incubation, mentoring, and infrastructure.
- **Atal Community Innovation Centres (ACICs):** Promote innovation in underserved and rural regions.
- **Mentor India Programme:** Connects industry experts with students and innovators.
- **AIM SUMVAAD:** A dialogue platform for knowledge sharing and collaboration among innovation ecosystem stakeholders.

KEY HIGHLIGHTS

- **Programme:** AIM SUMVAAD – North East Chapter 2026.



- **Organiser:** Atal Innovation Mission (AIM), NITI Aayog.
- **Focus:** Frontier technologies, startups, and innovation ecosystem development.
- **Regional Significance:** Strengthens entrepreneurship and innovation capacity in Northeast India.
- **Economic Significance:** Promotes startups, job creation, and technology-driven economic growth.
- **Educational Significance:** Encourages STEM education, innovation, and entrepreneurship among students.
- **Challenges:** Limited access to venture capital, infrastructure gaps, technology commercialization, and industry linkages.
- **Way Forward:** Expand incubation infrastructure, strengthen industry-academia partnerships, improve access to funding, promote deep-tech startups, and enhance innovation capacity in Tier-II, Tier-III, and Northeastern regions.

PRELIMS BOOSTER BOX

- **Atal Innovation Mission (AIM):** Flagship innovation initiative launched in **2016** under **NITI Aayog**.
- **NITI Aayog:** Established on **1 January 2015**, replacing the Planning Commission as India's premier public policy think tank.
- **Atal Tinkering Labs (ATLs):** Innovation labs in schools promoting STEM learning, design thinking, and problem-solving.
- **Atal Incubation Centres (AICs):** Incubation centres supporting startups through mentoring, infrastructure, and business development.
- **Atal Community Innovation Centres (ACICs):** Promote innovation and entrepreneurship in underserved, rural, and aspirational regions.
- **Startup India:** Launched in **2016** to promote innovation, entrepreneurship, and startup growth.

- **Deep Tech:** Technology based on substantial scientific or engineering advances, including AI, quantum computing, biotechnology, advanced materials, and space technology.
- **STEM:** Science, Technology, Engineering, and Mathematics.
- **Innovation Ecosystem:** Network of institutions, startups, investors, academia, industry, and government that fosters innovation and entrepreneurship.
- **Atmanirbhar Bharat:** Vision of building a self-reliant India through innovation, manufacturing, and technological advancement.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **Atal Innovation Mission (AIM)** is implemented by **NITI Aayog**.
2. **Atal Tinkering Labs (ATLs)** are established to promote innovation, STEM education, and design thinking among school students.
3. **Atal Community Innovation Centres (ACICs)** aim to promote innovation and entrepreneurship in underserved regions.

Which of the statements given above is/are correct?

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

Answer: (d)

3. LOK SABHA SPEAKER DEFINES LEGISLATURES AS 'SCHOOLS OF DEMOCRACY' WHERE LAWMAKERS LEARN VALUES OF DIALOGUE, CONSENSUS, AND SERVICE



- Legislatures are the cornerstone of representative democracy, providing a platform for debate, deliberation, and law-making.
- The Speaker emphasized that democratic institutions nurture values such as dialogue, consensus-building, respect for diverse opinions, and service to citizens.
- Effective legislative functioning strengthens accountability of the Executive through discussions, questions, debates, and committee oversight.
- Parliamentary proceedings provide a mechanism for resolving differences through constitutional means rather than confrontation.
- Legislatures also perform key functions of law-making, financial control, and representation of public interests.
- The statement underscores the importance of maintaining parliamentary decorum, constructive debate, and informed decision-making.
- Strong legislatures are essential for protecting constitutional values, fundamental rights, and democratic accountability.

- The remarks reinforce India's commitment to parliamentary democracy and participatory governance.

BACKGROUND / CONTEXT

Parliamentary Democracy in India

- I. India follows the **Parliamentary System of Government** based on the **Westminster model**.
- II. Parliament consists of:
 - A. **The President**
 - B. **Lok Sabha (House of the People)**
 - C. **Rajya Sabha (Council of States)**

Functions of the Legislature

- Enacts laws.
- Exercises financial control through the Budget process.
- Holds the Executive accountable.
- Represents citizens and diverse interests.
- Debates matters of national importance.
- Amends the Constitution under **Article 368**.

Role of the Lok Sabha Speaker

- Presides over the proceedings of the Lok Sabha.
- Maintains order and decorum in the House.
- Interprets and enforces the Rules of Procedure.
- Decides on the admissibility of motions and questions.
- Acts as the final authority in matters relating to the **Tenth Schedule (Anti-Defection Law)**, subject to judicial review.

KEY HIGHLIGHTS

- **Theme:** Legislatures as "Schools of Democracy."
- **Core Values:** Dialogue, consensus, constitutionalism, accountability, and public service.
- **Institutional Significance:** Strengthens representative democracy and rule of law.
- **Governance Significance:** Ensures executive accountability and citizen representation.



- **Constitutional Significance:** Upholds constitutional values and democratic institutions.
- **Democratic Significance:** Encourages informed debate, peaceful resolution of differences, and participatory governance.
- **Challenges:** Frequent disruptions, declining quality of debates, reduced sitting days, and limited scrutiny of legislation.
- **Way Forward:** Strengthen parliamentary committees, improve legislative research support, encourage constructive debate, increase sitting days, and promote greater public engagement with legislative processes.

PRELIMS BOOSTER BOX

- **Article 79:** Parliament consists of the **President, Lok Sabha, and Rajya Sabha.**
- **Article 93:** Provides for the election of the **Speaker and Deputy Speaker of the Lok Sabha.**
- **Article 105:** Defines the powers, privileges, and immunities of Parliament and its members.
- **Article 107:** Deals with the introduction and passage of **ordinary Bills.**
- **Article 110:** Defines a **Money Bill.**
- **Article 111:** Assent of the President to Bills passed by Parliament.
- **Article 118:** Parliament may make rules for regulating its procedure and conduct of business.
- **Article 368:** Procedure for amendment of the Constitution.
- **Tenth Schedule:** Contains provisions relating to **disqualification on the ground of defection (Anti-Defection Law).**
- **Department-related Parliamentary Standing Committees (DRSCs):** Examine Bills, scrutinize Demands for Grants, and oversee the functioning of Ministries, thereby strengthening legislative oversight.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. **Article 79** provides that the Parliament of India consists of the **President, Lok Sabha, and Rajya Sabha.**
2. **Article 93** provides for the election of the **Speaker and Deputy Speaker of the Lok Sabha.**
3. The **Tenth Schedule** of the Constitution deals with **disqualification of legislators on the ground of defection.**

Which of the statements given above is/are correct?

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

Answer: (d)

4. WORLD YOUTH SKILLS DAY 2026: "THE FUTURE BELONGS TO THOSE WHO LEARN, ADAPT AND INNOVATE"



- World Youth Skills Day underscores the importance of equipping young people with skills for employment, entrepreneurship, and sustainable development.



- The Government highlighted the need to develop **future-ready skills** in areas such as Artificial Intelligence (AI), digital technologies, green jobs, advanced manufacturing, and emerging technologies.
- Emphasis was laid on **lifelong learning**, adaptability, and innovation to meet changing labour market demands.
- Skill development initiatives aim to improve employability, productivity, and economic growth while supporting the vision of **Viksit Bharat 2047**.
- The event also stressed stronger industry-academia collaboration, apprenticeship opportunities, and vocational education.
- Entrepreneurship and innovation were identified as key drivers of job creation and economic resilience.
- The initiative aligns with India's demographic dividend by empowering youth with market-relevant skills.
- It also contributes to achieving the **Sustainable Development Goals (SDGs)**, particularly quality education and decent work.

BACKGROUND / CONTEXT

World Youth Skills Day (WYSD)

- **Observed:** 15 July every year.
- **Declared by:** United Nations General Assembly (UNGA) in 2014.
- **First Observed:** 2015.
- **Objective:** Raise awareness about the importance of equipping youth with skills for employment, decent work, entrepreneurship, and lifelong learning.

Major Skill Development Initiatives in India

Skill India Mission

- **Launched:** 2015.
- Seeks to create a skilled workforce aligned with industry requirements.

Pradhan Mantri Kaushal Vikas Yojana (PMKVY)

- Flagship skill certification scheme.
- Focuses on industry-relevant skill training and Recognition of Prior Learning (RPL).

National Skill Development Corporation (NSDC)

- A **not-for-profit company** established in **2008**.
- Promotes private sector participation in skill development.

National Education Policy (NEP) 2020

- Encourages vocational education, multidisciplinary learning, and skill integration at all levels.

KEY HIGHLIGHTS

- **Occasion:** World Youth Skills Day 2026.
- **Date:** 15 July.
- **Theme:** Empowering youth through learning, adaptability, and innovation.
- **Primary Focus:** Future-ready skills, lifelong learning, digital competencies, and entrepreneurship.
- **Economic Significance:** Enhances employability, productivity, innovation, and economic competitiveness.
- **Social Significance:** Harnesses India's demographic dividend and promotes inclusive development.
- **Educational Significance:** Strengthens vocational education, apprenticeships, and industry-oriented training.
- **Challenges:** Skill mismatch, digital divide, unequal access to quality training, and rapidly evolving technology.
- **Way Forward:** Expand industry partnerships, strengthen apprenticeship programmes, integrate AI and digital skills into curricula, promote lifelong learning, and improve access to quality skilling in rural and underserved areas.

PRELIMS BOOSTER BOX

- **World Youth Skills Day (WYSD):** Observed annually on **15 July**.
- **Declared By: United Nations General Assembly (UNGA)** in **2014**.
- **First Observed: 2015**.
- **Skill India Mission:** Launched in **2015** to create an industry-ready skilled workforce.
- **Pradhan Mantri Kaushal Vikas Yojana (PMKVY):** Flagship scheme for short-term skill training and certification.
- **National Skill Development Corporation (NSDC):** Established in **2008** as a public-private partnership to promote skill development.
- **National Education Policy (NEP) 2020:** Promotes vocational education, experiential learning, and multidisciplinary education.
- **Recognition of Prior Learning (RPL):** Framework for assessing and certifying skills acquired through informal or non-formal learning.
- **Demographic Dividend:** Economic growth potential arising from a large working-age population.
- **SDG 8: Decent Work and Economic Growth; SDG 4: Quality Education.**

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. **World Youth Skills Day** is observed every year on **15 July**.
2. The **National Skill Development Corporation (NSDC)** was established in **2008** to promote skill development through public-private partnership.
3. **Recognition of Prior Learning (RPL)** is a mechanism for assessing and certifying skills acquired through informal or non-formal learning.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

Answer: (d)

5. INDIAN PHARMACOPOEIA COMMISSION SIGNS MoU WITH UTTAR PRADESH PHARMA COUNCIL (UPPPC) TO STRENGTHEN QUALITY, INNOVATION, AND REGULATORY EXCELLENCE IN HEALTHCARE



- The MoU seeks to promote collaboration in **drug quality assurance, pharmaceutical research, innovation, and capacity building**.
- It focuses on strengthening regulatory standards and promoting the adoption of **Indian Pharmacopoeia** standards across the pharmaceutical sector.
- The partnership will facilitate training programmes, technical cooperation, and knowledge sharing among industry, academia, and regulatory institutions.
- It aims to improve laboratory capabilities and support quality testing of medicines.
- The collaboration encourages research and innovation in pharmaceutical sciences and regulatory practices.



- The initiative will help improve compliance with national and international quality standards.
- It is expected to enhance the global competitiveness of India's pharmaceutical industry.
- The partnership aligns with India's objective of ensuring **safe, effective, and quality medicines** for all.

BACKGROUND / CONTEXT

Indian Pharmacopoeia Commission (IPC)

- **Established:** 2009.
- **Headquarters:** Ghaziabad, Uttar Pradesh.
- **Administrative Ministry:** Ministry of Health and Family Welfare.
- An autonomous institution responsible for setting standards for drugs marketed in India.

Functions of IPC

- Publishes the **Indian Pharmacopoeia (IP)**.
- Develops standards for the identity, purity, strength, and quality of medicines.
- Acts as the **National Coordination Centre (NCC)** for the **Pharmacovigilance Programme of India (PvPI)**.
- Supports drug quality testing and regulatory science.

Indian Pharmacopoeia (IP)

- Official book of drug standards in India.
- Specifies quality standards for pharmaceutical substances, dosage forms, and medical products.
- Used by manufacturers, regulators, and testing laboratories to ensure medicine quality.

KEY HIGHLIGHTS

- **MoU Partners:** Indian Pharmacopoeia Commission (IPC) and Uttar Pradesh Pharma Council (UPPPC).
- **Primary Objective:** Strengthen pharmaceutical quality, innovation, and regulatory excellence.

- **Focus Areas:** Drug quality assurance, research, laboratory strengthening, skill development, and regulatory cooperation.
- **Healthcare Significance:** Improves the safety, efficacy, and quality of medicines.
- **Economic Significance:** Enhances the competitiveness of India's pharmaceutical industry and supports pharmaceutical exports.
- **Scientific Significance:** Promotes regulatory science, pharmaceutical innovation, and quality assurance.
- **Challenges:** Harmonization with global standards, capacity building, quality compliance among MSMEs, and rapid technological changes.
- **Way Forward:** Strengthen quality infrastructure, expand regulatory training, promote industry-academia collaboration, adopt advanced analytical technologies, and align with international best practices.

PRELIMS BOOSTER BOX

- **Indian Pharmacopoeia Commission (IPC):** Autonomous institution under the **Ministry of Health and Family Welfare**, established in 2009.
- **Headquarters:** Ghaziabad, Uttar Pradesh.
- **Indian Pharmacopoeia (IP):** Official compendium prescribing standards for the identity, purity, strength, and quality of medicines in India.
- **Pharmacovigilance Programme of India (PvPI):** National programme for monitoring the safety of medicines, coordinated by the **Indian Pharmacopoeia Commission**.
- **Central Drugs Standard Control Organisation (CDSCO):** India's national drug regulatory authority headed by the **Drugs Controller General of India (DCGI)**.
- **Drugs Controller General of India (DCGI):** Heads CDSCO and is responsible for the approval of new drugs, clinical trials, and regulation of pharmaceuticals in India.



- **Good Manufacturing Practices (GMP):** Standards that ensure medicines are consistently produced and controlled according to quality standards.
- **Regulatory Science:** Application of scientific methods to evaluate the safety, quality, and efficacy of medical products.
- **Pharmacopoeia:** An official publication containing standards and specifications for medicines and pharmaceutical substances.
- **Atmanirbhar Bharat:** Government initiative aimed at promoting self-reliance in key sectors, including pharmaceuticals and healthcare.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **Indian Pharmacopoeia Commission (IPC)** functions under the **Ministry of Health and Family Welfare**.
2. The **Indian Pharmacopoeia (IP)** prescribes official standards for the quality of medicines in India.
3. The **Pharmacovigilance Programme of India (PvPI)** is coordinated by the **Indian Pharmacopoeia Commission**.

Which of the statements given above is/are correct?

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

Answer: (d)

1. INDIA'S FIRST HYDROGEN-POWERED TRAIN: ADVANCING GREEN RAIL MOBILITY



- The hydrogen-powered train will operate using **hydrogen fuel cell technology**, generating electricity through the electrochemical reaction of hydrogen and oxygen.
- The only by-products of the process are **water and heat**, making it a zero tailpipe emission technology.
- The project is initially planned for operation on selected heritage and non-electrified railway routes.
- Hydrogen-powered trains offer a cleaner alternative to diesel locomotives, especially where railway electrification is not economically feasible.
- The initiative is expected to reduce greenhouse gas emissions, improve energy efficiency, and promote the adoption of green hydrogen in the transport sector.
- The project also encourages indigenous development of hydrogen technologies under the **Atmanirbhar Bharat** initiative.
- It strengthens India's transition towards sustainable and low-carbon transportation.
- The initiative complements broader efforts to develop a domestic **green hydrogen ecosystem**.

BACKGROUND / CONTEXT

Hydrogen Fuel Cell Train

- A hydrogen fuel cell train uses **fuel cells** to convert hydrogen into electricity through an electrochemical process.
- The electricity powers electric traction motors.
- **By-products:** Water vapour and heat.
- Unlike diesel engines, fuel cells produce **no direct carbon dioxide emissions**.

National Green Hydrogen Mission

- **Launched:** 2023.
- **Nodal Ministry:** Ministry of New and Renewable Energy (MNRE).
- **Objective:** Make India a global hub for the production, utilization, and export of **green hydrogen** and its derivatives.

Indian Railways and Decarbonization

- I. Indian Railways aims to become a **Net Zero Carbon Emitter by 2030**.
- II. Key initiatives include:
 - A. 100% railway electrification.
 - B. Renewable energy adoption.
 - C. Energy-efficient technologies.
 - D. Hydrogen-powered trains.
 - E. Biofuel and alternative fuel initiatives.

KEY HIGHLIGHTS

- **Project:** India's first hydrogen-powered train.
- **Implementing Agency:** Indian Railways.
- **Technology:** Hydrogen fuel cell propulsion.
- **Primary Objective:** Promote zero-emission rail transport and green mobility.
- **Environmental Significance:** Reduces greenhouse gas emissions and air pollution.
- **Energy Significance:** Supports clean energy transition and hydrogen economy.
- **Economic Significance:** Promotes indigenous hydrogen technology and reduces fossil fuel dependence.



- **Challenges:** High production cost of green hydrogen, storage infrastructure, fuel cell costs, and scaling up hydrogen supply chains.
- **Way Forward:** Expand green hydrogen production, develop refuelling infrastructure, encourage domestic manufacturing of fuel cells, and integrate hydrogen technology into public transport systems.

PRELIMS BOOSTER BOX

- **Hydrogen Fuel Cell:** Converts hydrogen and oxygen into electricity through an electrochemical reaction, producing **water and heat** as by-products.
- **Green Hydrogen:** Hydrogen produced using renewable electricity through the **electrolysis of water**, with negligible carbon emissions.
- **Grey Hydrogen:** Produced from natural gas or coal without carbon capture; associated with significant CO₂ emissions.
- **Blue Hydrogen:** Produced from fossil fuels with **Carbon Capture, Utilisation and Storage (CCUS)** technologies.
- **National Green Hydrogen Mission:** Launched in **2023** under the **Ministry of New and Renewable Energy (MNRE)**.
- **Electrolysis:** Process of splitting water into hydrogen and oxygen using electricity.
- **Fuel Cell:** An electrochemical device that continuously converts chemical energy into electrical energy without combustion.
- **Net Zero Emissions:** Achieving a balance between greenhouse gas emissions produced and those removed from the atmosphere.
- **Indian Railways' Net Zero Target: 2030.**
- **Hydrogen Economy:** An economic system where hydrogen serves as a major clean energy carrier for transport, industry, and power generation.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. A **hydrogen fuel cell** generates electricity through an electrochemical reaction between hydrogen and oxygen.
2. **Green hydrogen** is produced by electrolysis of water using renewable energy.
3. The **National Green Hydrogen Mission** is implemented by the **Ministry of New and Renewable Energy (MNRE)**.

Which of the statements given above is/are correct?

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

Answer: (d)

2. INDIAN NAVY SET TO COMMISSION THE LATEST ANTI-SUBMARINE WARFARE SHALLOW WATER CRAFT (ASW-SWC) 'MALVAN'



- I. **INS Malvan** is part of the **Anti-Submarine Warfare Shallow Water Craft (ASW-SWC)** programme of the Indian Navy.
- II. The vessel is designed for **detecting, tracking, and neutralising enemy submarines** operating in shallow coastal waters.
- III. Besides anti-submarine operations, the ship can undertake:
 - A. Coastal surveillance.
 - B. Search and rescue (SAR).



- C. Low-intensity maritime operations.
- D. Mine-laying (where required).
- IV. It is equipped with advanced **sonars, underwater sensors, lightweight torpedoes, and anti-submarine rockets**.
- V. The induction enhances India's maritime security and complements the Navy's coastal defence architecture.
- VI. The project promotes indigenous shipbuilding and defence manufacturing under **Aatmanirbhar Bharat** and **Make in India**.
- VII. The vessel strengthens India's preparedness against emerging underwater threats in the **Indian Ocean Region (IOR)**.
- VIII. It reflects India's focus on modernizing naval capabilities and safeguarding maritime interests.

BACKGROUND / CONTEXT

ASW Shallow Water Craft (ASW-SWC)

- I. A class of indigenously built warships designed specifically for **anti-submarine warfare in shallow coastal waters**.
- II. Built for:
 - A. Detection and destruction of submarines.
 - B. Coastal patrol.
 - C. Maritime surveillance.
 - D. Search and Rescue (SAR).
 - E. Protection of ports and offshore installations.

Key Features

- Advanced hull-mounted sonar.
- Lightweight torpedoes.
- Anti-submarine rocket systems.
- Modern electronic warfare and communication systems.
- High manoeuvrability for shallow-water operations.

Importance of Anti-Submarine Warfare (ASW)

- Detects and neutralizes hostile submarines.
- Protects sea lines of communication (SLOCs).
- Secures ports, harbours, and offshore infrastructure.
- Enhances maritime domain awareness.
- Strengthens deterrence in the Indian Ocean Region.

KEY HIGHLIGHTS

- **Vessel:** INS Malvan.
- **Type:** Anti-Submarine Warfare Shallow Water Craft (ASW-SWC).
- **Operator:** Indian Navy.
- **Primary Role:** Anti-submarine warfare in shallow coastal waters.
- **Strategic Significance:** Enhances coastal security, underwater surveillance, and maritime deterrence.
- **Defence Significance:** Strengthens indigenous naval capability and force modernization.
- **Economic Significance:** Promotes domestic shipbuilding and defence manufacturing.
- **Challenges:** Rapidly evolving underwater warfare technologies, maintenance of advanced sensors, and expanding submarine activity in the Indian Ocean.
- **Way Forward:** Accelerate induction of indigenous naval platforms, integrate AI-enabled underwater surveillance, strengthen maritime domain awareness, and expand indigenous defence production.

PRELIMS BOOSTER BOX

- **ASW: Anti-Submarine Warfare**—operations to detect, track, and neutralize enemy submarines.
- **ASW-SWC: Anti-Submarine Warfare Shallow Water Craft**, designed for operations in littoral and coastal waters.



- **Indian Ocean Region (IOR):** A strategically important maritime region connecting major global trade routes.
- **Sea Lines of Communication (SLOCs):** Primary maritime routes essential for international trade, energy supplies, and naval movement.
- **Sonar (Sound Navigation and Ranging):** Uses sound waves to detect and locate underwater objects such as submarines.
- **Lightweight Torpedo:** A guided underwater weapon primarily used against submarines.
- **Maritime Domain Awareness (MDA):** Effective understanding of activities in the maritime domain that could impact security, safety, economy, or the environment.
- **Aatmanirbhar Bharat in Defence:** Government initiative to promote indigenous design, development, and manufacturing of defence equipment.
- **Make in India (Defence):** Initiative to enhance domestic defence production and reduce import dependence.
- **Search and Rescue (SAR):** Operations to locate and assist persons in distress at sea.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. **Anti-Submarine Warfare (ASW)** involves operations to detect and neutralize hostile submarines.
2. **Sonar** uses sound waves to detect underwater objects.
3. **Sea Lines of Communication (SLOCs)** are important maritime routes critical for global trade and strategic movement.

Which of the statements given above is/are correct?

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

Answer: (d)

3. INDIA ACHIEVES MAJOR MILESTONE AT CODEX COMMISSION WITH ADOPTION OF THREE GLOBAL STANDARDS FOR SPICES



- The **Codex Alimentarius Commission** adopted three international standards for spices, with India playing a key role in their development.
- The standards aim to ensure **quality, safety, authenticity, and fair trade practices** in the global spice market.
- Harmonized standards reduce technical barriers to trade and improve market access for exporters.
- The adoption is expected to enhance the global competitiveness of Indian spices by promoting uniform quality benchmarks.
- The initiative supports consumer protection by ensuring safe and high-quality spice products.
- India, being the world's largest producer, consumer, and exporter of several spices, stands to benefit significantly from these internationally recognized standards.
- The achievement reflects India's growing influence in global food standard-setting processes.
- It also aligns with the objective of increasing agricultural exports and strengthening India's food processing sector.

BACKGROUND / CONTEXT

Codex Alimentarius Commission (CAC)

- **Established:** 1963.
- **Created by:** Food and Agriculture Organization (FAO) and World Health Organization (WHO).
- Develops **international food standards, guidelines, and codes of practice** to protect consumer health and ensure fair practices in food trade.
- The collection of standards is known as the **Codex Alimentarius** ("Food Code").

Codex Committee on Spices and Culinary Herbs (CCSCH)

- **Host Country:** India.
- Established in **2013** under the Codex Alimentarius Commission.
- Develops international standards for spices and culinary herbs to facilitate safe and fair global trade.

Spices Board India

- **Established:** 1987 under the **Spices Board Act, 1986**.
- **Administrative Ministry:** Ministry of Commerce and Industry.
- Responsible for the promotion, development, quality improvement, and export of Indian spices.

KEY HIGHLIGHTS

- **Organisation:** Codex Alimentarius Commission (CAC).
- **Achievement:** Adoption of three global standards for spices.
- **India's Role:** Active contributor and host of the Codex Committee on Spices and Culinary Herbs (CCSCH).
- **Economic Significance:** Enhances spice exports, improves market access, and strengthens India's global leadership in the spice trade.

- **Consumer Significance:** Ensures food safety, quality assurance, and consumer protection.
- **Trade Significance:** Reduces technical barriers to international trade through harmonized standards.
- **Challenges:** Ensuring compliance by small producers, traceability, quality certification, and meeting stringent export requirements.
- **Way Forward:** Strengthen quality testing infrastructure, improve farmer awareness, promote Good Agricultural Practices (GAP), enhance traceability, and expand value-added spice exports.

PRELIMS BOOSTER BOX

- **Codex Alimentarius Commission (CAC):** Established in **1963** by the **FAO** and **WHO** to develop international food standards.
- **Codex Alimentarius:** Collection of internationally recognized food standards, guidelines, and codes of practice.
- **FAO: Food and Agriculture Organization** of the United Nations, established in **1945**.
- **WHO: World Health Organization**, established in **1948**.
- **Codex Committee on Spices and Culinary Herbs (CCSCH):** Established in **2013**; **India** is the host country.
- **Spices Board India:** Constituted under the **Spices Board Act, 1986** and established in **1987** under the **Ministry of Commerce and Industry**.
- **Good Agricultural Practices (GAP):** Sustainable farming practices that ensure food safety, quality, environmental protection, and worker welfare.
- **Technical Barriers to Trade (TBT):** Non-tariff measures such as standards, testing, certification, and labeling requirements that may affect international trade.
- **Traceability:** Ability to track a food product through all stages of production, processing, and distribution.



- **India's Position:** India is among the **world's largest producer, consumer, and exporter of spices**, exporting over **200 varieties of spices and spice products**.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **Codex Alimentarius Commission (CAC)** was established jointly by the **FAO** and the **WHO**.
2. **India** hosts the **Codex Committee on Spices and Culinary Herbs (CCSCH)**.
3. The **Spices Board India** functions under the **Ministry of Commerce and Industry**.

Which of the statements given above is/are correct?

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

Answer: (d)

4. ICMR STUDY FINDS DRONE-ENABLED TB SAMPLE TRANSPORT CAN REDUCE DIAGNOSIS TIME AND PATIENT EXPENSES IN REMOTE TELANGANA



- The study evaluated the use of drones to transport **TB sputum samples** from remote health facilities to diagnostic laboratories.

- Under the drone model, **diagnosis time was reduced from around 15 days to about 5 days**, enabling earlier treatment initiation.
- Patient **out-of-pocket expenditure** fell sharply as repeated travel to distant diagnostic centres was avoided.
- The project was implemented under **ICMR's i-DRONE initiative**, demonstrating the role of drone technology in strengthening healthcare delivery in difficult-to-reach regions.
- Drone logistics can improve access to timely diagnosis for populations in geographically isolated and underserved areas.
- The findings support the integration of drone technology into the **National TB Elimination Programme (NTEP)**, particularly in hilly, tribal, and remote regions.
- The initiative aligns with India's efforts to leverage digital and emerging technologies for achieving **Universal Health Coverage (UHC)**.
- It also contributes to India's goal of eliminating tuberculosis through faster diagnosis and treatment.

BACKGROUND / CONTEXT

i-DRONE Initiative

- A flagship initiative of the **Indian Council of Medical Research (ICMR)**.
- Demonstrates the use of **drone technology** for transporting medical supplies, diagnostic samples, vaccines, and medicines.
- Aims to improve healthcare accessibility in remote and inaccessible regions.

National TB Elimination Programme (NTEP)

- Formerly known as the **Revised National Tuberculosis Control Programme (RNTCP)**.
- **Nodal Ministry:** Ministry of Health and Family Welfare.
- Objective: Eliminate tuberculosis in India through early diagnosis, universal access to quality treatment, and patient support.

Tuberculosis (TB)

- Caused by the bacterium ***Mycobacterium tuberculosis***.
- Primarily affects the lungs (**pulmonary TB**) but can involve other organs.
- Spreads through **airborne droplets** when an infected person coughs, sneezes, or speaks.
- TB is **preventable and curable** with timely diagnosis and appropriate treatment.

KEY HIGHLIGHTS

- **Study:** Drone-enabled transport of TB sputum samples.
- **Lead Agency:** Indian Council of Medical Research (ICMR).
- **Location:** Yadadri-Bhuvanagiri district, Telangana.
- **Partners:** AIIMS Bibinagar and District TB Office under NTEP.
- **Primary Outcome:** Reduced diagnosis time and patient expenditure.
- **Healthcare Significance:** Enables earlier diagnosis, timely treatment, and improved access in remote areas.
- **Technological Significance:** Demonstrates the potential of drones in strengthening public health logistics.
- **Challenges:** Regulatory approvals, drone infrastructure, weather constraints, payload limitations, and scalability.
- **Way Forward:** Integrate drone logistics into national health programmes, expand operations to other difficult terrains, strengthen digital health infrastructure, and establish standard operating procedures for medical drone operations.

PRELIMS BOOSTER BOX

- **ICMR (Indian Council of Medical Research):** Apex body for biomedical research in India under the **Department of Health Research, Ministry of Health and Family Welfare**.

- **i-DRONE Initiative:** Uses drones to transport vaccines, medicines, blood products, and diagnostic samples to improve healthcare delivery.
- **NTEP (National TB Elimination Programme):** India's flagship programme for tuberculosis elimination.
- **RNTCP:** Revised National Tuberculosis Control Programme; renamed as **NTEP** in 2020.
- **Tuberculosis (TB):** Infectious disease caused by ***Mycobacterium tuberculosis***.
- **Sputum Sample:** Mucus coughed up from the lungs, commonly used for TB diagnosis.
- **NAAT (Nucleic Acid Amplification Test):** Molecular diagnostic technique used for rapid detection of TB and drug resistance.
- **Universal Health Coverage (UHC):** Ensures access to quality health services without financial hardship.
- **Drone Rules, 2021:** Simplified regulatory framework for drone operations in India.
- **SDG 3:** Ensure healthy lives and promote well-being for all at all ages, including ending the TB epidemic.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **i-DRONE initiative** is led by the **Indian Council of Medical Research (ICMR)** to improve healthcare delivery using drone technology.
2. **Tuberculosis** is caused by the bacterium ***Mycobacterium tuberculosis***.
3. The **National TB Elimination Programme (NTEP)** was formerly known as the **Revised National Tuberculosis Control Programme (RNTCP)**.

Which of the statements given above is/are correct?

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

Answer: (d)

5. STRENGTHENING RURAL CREDIT FOR INCLUSIVE GROWTH IN INDIA



- Rural credit plays a crucial role in providing farmers, rural entrepreneurs, Self-Help Groups (SHGs), and small businesses with access to affordable finance.
- The Government has expanded institutional credit through commercial banks, Regional Rural Banks (RRBs), cooperative banks, and Small Finance Banks.
- Major initiatives such as the **Kisan Credit Card (KCC)** scheme have improved farmers' access to short-term crop loans and working capital.
- Financial inclusion programmes, including the **Pradhan Mantri Jan Dhan Yojana (PMJDY)** and digital payment infrastructure, have strengthened rural banking access.
- Rural credit supports agricultural modernization, mechanization, allied activities, MSMEs, and rural infrastructure development.
- Priority Sector Lending (PSL) norms ensure adequate credit flow to agriculture and other underserved sectors.
- Strengthening rural credit contributes to poverty reduction, employment generation, and inclusive economic growth.

- The initiative aligns with the vision of **Viksit Bharat, Atmanirbhar Bharat**, and sustainable rural transformation.

BACKGROUND / CONTEXT

Rural Credit

- I. Refers to institutional and non-institutional loans provided to:
 - A. Farmers.
 - B. Agricultural labourers.
 - C. Rural artisans.
 - D. Rural entrepreneurs.
 - E. Self-Help Groups (SHGs).
 - F. Rural MSMEs.

Sources of Institutional Rural Credit

- Commercial Banks.
- Regional Rural Banks (RRBs).
- Cooperative Banks.
- Small Finance Banks.
- NABARD-supported financial institutions.

National Bank for Agriculture and Rural Development (NABARD)

- **Established: 1982.**
- Apex development financial institution for agriculture and rural development.
- Promotes sustainable rural prosperity through credit planning, refinancing, and institutional development.

MAJOR GOVERNMENT INITIATIVES

Kisan Credit Card (KCC)

- Provides timely and affordable short-term credit to farmers.
- Covers crop cultivation, allied activities, and working capital needs.

Priority Sector Lending (PSL)

- I. Mandated by the **Reserve Bank of India (RBI)**.
- II. Requires banks to lend a specified proportion of credit to priority sectors such as:
 - A. Agriculture.



- B. MSMEs.
- C. Education.
- D. Housing.
- E. Renewable energy.

Pradhan Mantri Jan Dhan Yojana (PMJDY)

- **Launched: 2014.**
- Expands access to banking, savings, credit, insurance, and pension services.

Self-Help Group (SHG)–Bank Linkage

Programme

- Implemented by **NABARD**.
- Promotes financial inclusion and women's empowerment through group-based lending.

KEY HIGHLIGHTS

- **Focus:** Expanding rural institutional credit.
- **Primary Objective:** Promote inclusive growth and financial inclusion.
- **Economic Significance:** Increases agricultural investment, productivity, and rural entrepreneurship.
- **Social Significance:** Reduces dependence on informal moneylenders and empowers vulnerable communities.
- **Financial Significance:** Strengthens formal banking penetration and digital financial inclusion.
- **Challenges:** Limited credit access for tenant farmers, regional disparities, rising NPAs, low financial literacy, and climate-related credit risks.
- **Way Forward:** Expand digital lending, strengthen farmer credit assessment, improve financial literacy, enhance SHG financing, promote climate-resilient agricultural credit, and leverage fintech for last-mile banking services.

PRELIMS BOOSTER BOX

- **NABARD: National Bank for Agriculture and Rural Development**, established in **1982**; apex

development financial institution for agriculture and rural development.

- **Kisan Credit Card (KCC):** Introduced in **1998** to provide timely and affordable credit to farmers.
- **Regional Rural Banks (RRBs):** Established under the **Regional Rural Banks Act, 1976** to provide banking services in rural areas.
- **Priority Sector Lending (PSL):** RBI policy requiring banks to lend a prescribed share of credit to priority sectors.
- **Pradhan Mantri Jan Dhan Yojana (PMJDY):** Launched in **2014** to promote universal financial inclusion.
- **SHG–Bank Linkage Programme:** Launched by **NABARD** in **1992** to connect Self-Help Groups with formal banking institutions.
- **Self-Help Group (SHG):** A voluntary group, usually comprising 10–20 members (primarily women), that promotes savings and access to credit.
- **Financial Inclusion:** Ensuring affordable access to financial services such as banking, credit, insurance, and pensions.
- **Agriculture Infrastructure Fund (AIF):** Central Sector Scheme launched in **2020** to provide medium- to long-term financing for post-harvest agricultural infrastructure.
- **Inclusive Growth:** Economic growth that creates opportunities for all sections of society and ensures equitable distribution of its benefits.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. **NABARD** was established in **1982** as the apex development financial institution for agriculture and rural development.
2. The **Kisan Credit Card (KCC)** scheme was introduced to provide timely institutional credit to farmers.



3. The **SHG–Bank Linkage Programme** is implemented by **NABARD** to promote financial inclusion through Self-Help Groups.

Which of the statements given above is/are correct?

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

Answer: (d)

1. BHARAT TEX 2026: WHERE EVERY THREAD OPENS A NEW OPPORTUNITY



- Bharat Tex 2026 is a comprehensive global textile platform covering the entire textile value chain—from fibre and yarn to fabrics, garments, technical textiles, machinery, and fashion.
- The event aims to promote '**Farm to Fibre, Fibre to Factory, Factory to Fashion, Fashion to Foreign Markets**', reflecting India's integrated textile strategy.
- It showcases India's strengths in handlooms, handicrafts, apparel, technical textiles, sustainable manufacturing, and textile machinery.
- The platform facilitates **B2B meetings, investment opportunities, technology transfer, innovation, and international collaborations**.
- Special emphasis is placed on **technical textiles, sustainable production, circular economy practices, digitalization, and smart manufacturing**.
- Bharat Tex supports the vision of increasing textile exports, generating employment, and

strengthening India's position in global value chains.

- The event also highlights initiatives supporting MSMEs, artisans, startups, women entrepreneurs, and traditional textile clusters.
- It aligns with the objectives of **Make in India, Atmanirbhar Bharat, PM MITRA Parks**, and the **National Technical Textiles Mission (NTTM)**.

BACKGROUND / CONTEXT

Bharat Tex

- A flagship global textile event supported by the **Ministry of Textiles** and leading textile industry bodies.
- Serves as a one-stop platform for:
 - Textile trade.
 - Investment promotion.
 - Innovation.
 - Technology adoption.
 - Global buyer-seller interactions.
- Covers the complete textile and apparel value chain.

India's Textile Sector

- One of the **largest employers** in the country after agriculture.
- Contributes significantly to:
 - Manufacturing output.
 - Exports.
 - GDP.
 - Employment generation.
- India is among the world's leading producers of:
 - Cotton.
 - Jute.
 - Silk.
 - Man-made fibres.
 - Handloom and handicraft products.

MAJOR GOVERNMENT INITIATIVES

PM MITRA Parks

- **PM Mega Integrated Textile Region and Apparel (PM MITRA) Parks Scheme.**
- Develops integrated world-class textile manufacturing parks with plug-and-play infrastructure.

National Technical Textiles Mission (NTTM)

- **Launched: 2020.**
- Promotes research, innovation, exports, and domestic production of technical textiles.

Production Linked Incentive (PLI) Scheme for Textiles

- Supports domestic manufacturing of **MMF apparel, MMF fabrics, and technical textiles.**

SAMARTH Scheme

- Skill development programme for the textile and apparel sector.

KEY HIGHLIGHTS

- **Event:** Bharat Tex 2026.
- **Sector:** Textiles and apparel.
- **Objective:** Promote exports, investment, innovation, sustainability, and global partnerships.
- **Economic Significance:** Enhances manufacturing, exports, employment, and India's integration into global value chains.
- **Social Significance:** Supports artisans, weavers, MSMEs, women entrepreneurs, and rural livelihoods.
- **Environmental Significance:** Encourages sustainable textiles, circular economy practices, and resource-efficient manufacturing.
- **Challenges:** Global competition, fragmented supply chains, rising input costs, sustainability compliance, and technology adoption.
- **Way Forward:** Expand technical textiles, strengthen fibre diversification, modernize

textile infrastructure, promote branding of Indian textiles, enhance R&D, and improve global market access through trade agreements.

PRELIMS BOOSTER BOX

- **Bharat Tex:** India's flagship global textile exhibition showcasing the complete textile value chain.
- **Ministry of Textiles:** Nodal ministry for policy, development, and promotion of India's textile sector.
- **PM MITRA Parks: PM Mega Integrated Textile Region and Apparel Parks Scheme,** launched in **2021** to create integrated textile manufacturing ecosystems.
- **National Technical Textiles Mission (NTTM):** Approved in **2020** to promote research, innovation, exports, and domestic production of technical textiles.
- **Technical Textiles:** Textile materials designed primarily for functional and industrial applications rather than aesthetics (e.g., medical, geotextiles, defence, automotive, agriculture).
- **PLI Scheme for Textiles:** Promotes large-scale manufacturing of **Man-Made Fibre (MMF)** apparel, MMF fabrics, and technical textiles.
- **SAMARTH (Scheme for Capacity Building in Textile Sector):** Skill development initiative for the textile and apparel industry.
- **Cotton Corporation of India (CCI):** Public sector undertaking under the **Ministry of Textiles** that supports cotton procurement and price stabilization.
- **Textile Value Chain:** Fibre → Yarn → Fabric → Processing → Garments → Retail/Exports.
- **Circular Economy:** Economic model focused on reducing waste through reuse, recycling, repair, and resource efficiency.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:



1. The **National Technical Textiles Mission (NTTM)** was launched to promote research, innovation, and exports in technical textiles.
2. **PM MITRA Parks** aim to develop integrated textile manufacturing ecosystems with world-class infrastructure.
3. **Technical textiles** are primarily designed for functional and industrial applications rather than decorative purposes.

Which of the statements given above is/are correct?

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

Answer: (d)

2. PROBATIONERS OF THE INDIAN FOREST SERVICE (IFS) CALL ON THE PRESIDENT OF INDIA



- The interaction formed part of the training programme of IFS probationers before they assume field responsibilities.
- The President highlighted that IFS officers are custodians of India's rich forest and wildlife resources.
- Officers were encouraged to balance **environmental conservation with developmental needs** through sustainable forest management.

- Emphasis was laid on protecting biodiversity, mitigating climate change, restoring degraded ecosystems, and involving local communities in conservation efforts.
- The President stressed the importance of scientific forest management, technology adoption, and participatory governance.
- The interaction reinforced the constitutional duty of protecting forests and the environment for future generations.
- The event reflects the Government's continued focus on strengthening environmental governance and conservation institutions.
- Well-trained forest officers are vital for achieving India's commitments under global climate and biodiversity agreements.

BACKGROUND / CONTEXT

Indian Forest Service (IFS)

- One of the **three All India Services** under **Article 312** of the Constitution.
- **Constituted: 1966** under the **All India Services Act, 1951**.
- **Cadre Controlling Authority: Ministry of Environment, Forest and Climate Change (MoEFCC)**.
- Recruitment is conducted by the **Union Public Service Commission (UPSC)** through the Civil Services Examination.

Training of IFS Officers

- I. Initial training is conducted at the **Indira Gandhi National Forest Academy (IGNFA), Dehradun**.
- II. Training includes:
 - A. Forest management.
 - B. Wildlife conservation.
 - C. Biodiversity.
 - D. Climate change.
 - E. Remote sensing and GIS.
 - F. Forest laws and governance.

- G. Community-based forest management.

Major Responsibilities of IFS Officers

- Forest conservation and management.
- Wildlife protection.
- Biodiversity conservation.
- Implementation of forest and environmental laws.
- Afforestation and ecosystem restoration.
- Sustainable management of forest resources.
- Human-wildlife conflict mitigation.
- Climate change adaptation and mitigation initiatives.

KEY HIGHLIGHTS

- **Event:** IFS probationers called on the President of India.
- **Service:** Indian Forest Service (IFS).
- **Training Academy:** Indira Gandhi National Forest Academy (IGNFA), Dehradun.
- **Cadre Controlling Ministry:** Ministry of Environment, Forest and Climate Change (MoEFCC).
- **Environmental Significance:** Strengthens forest governance, biodiversity conservation, and ecological security.
- **Climate Significance:** Supports carbon sequestration, ecosystem restoration, and climate resilience.
- **Governance Significance:** Enhances implementation of forest policies and environmental laws.
- **Challenges:** Deforestation, forest degradation, climate change, human-wildlife conflict, and illegal wildlife trade.
- **Way Forward:** Promote sustainable forest management, strengthen community participation, expand technology-based monitoring, improve forest restoration, and enhance climate-resilient conservation strategies.

PRELIMS BOOSTER BOX

- **Indian Forest Service (IFS):** One of the **three All India Services** under **Article 312** of the Constitution.
- **Established: 1966** under the **All India Services Act, 1951**.
- **Cadre Controlling Authority: Ministry of Environment, Forest and Climate Change (MoEFCC).**
- **Training Academy: Indira Gandhi National Forest Academy (IGNFA), Dehradun.**
- **Article 48A (Directive Principles):** Directs the State to protect and improve the environment and safeguard forests and wildlife.
- **Article 51A(g) (Fundamental Duty):** It is the duty of every citizen to protect and improve the natural environment, including forests, lakes, rivers, and wildlife.
- **Forest (Conservation) Act, 1980:** Regulates the diversion of forest land for non-forest purposes (now amended as the **Van (Sanrakshan Evam Samvardhan) Adhiniyam, 1980**).
- **National Forest Policy, 1988:** Emphasizes ecological stability, biodiversity conservation, and people's participation in forest management.
- **Joint Forest Management (JFM):** Participatory approach involving local communities in forest protection and management.
- **India State of Forest Report (ISFR):** Biennial assessment of forest and tree cover published by the **Forest Survey of India (FSI)**.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **Indian Forest Service (IFS)** is one of the **three All India Services** constituted under **Article 312** of the Constitution.
2. The **Indira Gandhi National Forest Academy (IGNFA)** at Dehradun is the premier training institution for IFS probationers.

3. **Article 51A(g)** of the Constitution makes it a Fundamental Duty of every citizen to protect and improve the natural environment.

Which of the statements given above is/are correct?

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

Answer: (d)

3. MAHARASHTRA LEGISLATURE MOVES TOWARDS IMPLEMENTATION OF NeVA (NATIONAL e-VIDHAN APPLICATION)



- **NeVA (National e-Vidhan Application)** is a **Mission Mode Project (MMP)** under the **Digital India Programme** for digitizing the functioning of State Legislatures.
- The Maharashtra Legislature's adoption of NeVA will enable **paperless legislative proceedings**, reducing reliance on printed documents.
- Members will be able to access legislative business, Bills, questions, notices, committee reports, and other documents electronically through secure digital platforms.
- The platform facilitates real-time sharing of legislative information, improving the efficiency of House proceedings.

- NeVA promotes transparency by making legislative information more accessible to legislators and citizens.
- It also contributes to environmental sustainability by reducing paper consumption.
- The initiative strengthens good governance through digital transformation and improved legislative productivity.
- Maharashtra joins other States adopting NeVA to create a unified digital legislative ecosystem across India.

BACKGROUND / CONTEXT

National e-Vidhan Application (NeVA)

- A **Mission Mode Project** under the **Digital India Programme**.
- **Nodal Ministry: Ministry of Parliamentary Affairs.**
- Developed under the **Digital India** initiative to transform State Legislatures into **paperless legislatures**.

Objectives of NeVA

- Digitize legislative business.
- Promote paperless functioning.
- Improve transparency and accessibility.
- Enhance efficiency of legislative proceedings.
- Enable seamless sharing of legislative information.

Major Features

- I. Electronic access to:
 - A. Bills.
 - B. Questions and Answers.
 - C. List of Business.
 - D. Notices.
 - E. Committee Reports.
 - F. Legislative documents.
- II. Secure digital platform for Members of the Legislature.
- III. Real-time updates during House proceedings.

KEY HIGHLIGHTS

- **Initiative:** Implementation of the National e-Vidhan Application (NeVA).
- **State:** Maharashtra.
- **Nodal Ministry:** Ministry of Parliamentary Affairs.
- **Primary Objective:** Digitize and modernize legislative functioning.
- **Governance Significance:** Enhances transparency, efficiency, and accessibility in legislative processes.
- **Environmental Significance:** Reduces paper usage and promotes sustainable governance.
- **Technological Significance:** Supports e-Governance and Digital India through paperless legislatures.
- **Challenges:** Digital infrastructure, cybersecurity, capacity building, and change management.
- **Way Forward:** Complete digital integration of legislative processes, strengthen cybersecurity, train legislators and staff, and expand interoperability with other e-Governance platforms.

PRELIMS BOOSTER BOX

- **NeVA (National e-Vidhan Application):** A **Mission Mode Project (MMP)** under the **Digital India Programme** for digitizing the functioning of State Legislatures.
- **Nodal Ministry:** Ministry of Parliamentary Affairs.
- **Digital India Programme:** Launched on **1 July 2015** to transform India into a digitally empowered society and knowledge economy.
- **Mission Mode Project (MMP):** High-priority e-Governance project aimed at delivering specific public services electronically.
- **Paperless Legislature:** A legislature where legislative documents and proceedings are managed electronically rather than through physical paper.

- **Article 168:** Provides that every State shall have a Legislature consisting of the **Governor** and, in some States, one or two Houses.
- **Article 174:** Empowers the Governor to summon, prorogue, and dissolve the State Legislature (Legislative Assembly).
- **e-Governance:** Use of Information and Communication Technology (ICT) to improve government efficiency, transparency, and service delivery.
- **Good Governance:** Characterized by transparency, accountability, participation, responsiveness, and efficiency in public administration.
- **Digital Public Infrastructure (DPI):** Digital systems and platforms that enable efficient delivery of public services and governance.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **National e-Vidhan Application (NeVA)** is a **Mission Mode Project** under the **Digital India Programme**.
2. The **Ministry of Parliamentary Affairs** is the nodal ministry for implementing NeVA.
3. The primary objective of NeVA is to enable **paperless functioning of State Legislatures**.

Which of the statements given above is/are correct?

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

Answer: (d)

4. NCAHP RELEASES COMPETENCY-BASED CURRICULUM FOR DIPLOMA IN MEDICAL LABORATORY TECHNOLOGY TO STRENGTHEN ALLIED HEALTHCARE EDUCATION



- The competency-based curriculum focuses on developing practical knowledge, technical skills, ethical conduct, and patient-centric healthcare delivery.
- It aims to standardize DMLT education across institutions, ensuring uniform quality and learning outcomes.
- Greater emphasis is placed on **hands-on laboratory training**, clinical exposure, and competency assessment rather than rote learning.
- The curriculum aligns laboratory education with the evolving needs of modern diagnostic services and healthcare institutions.
- It promotes quality assurance, biosafety, infection control, laboratory ethics, and effective communication skills.
- The initiative seeks to bridge the gap between academia and industry by preparing graduates who are immediately employable.

- The curriculum supports capacity building in India's diagnostic and public health infrastructure.
- It contributes to improving the quality of allied healthcare professionals, thereby strengthening healthcare delivery nationwide.

BACKGROUND / CONTEXT

National Commission for Allied and Healthcare Professions (NCAHP)

- A statutory body established under the **National Commission for Allied and Healthcare Professions Act, 2021**.
- **Administrative Ministry:** Ministry of Health and Family Welfare.
- Regulates education, professional standards, and registration of allied and healthcare professionals in India.

Objectives of NCAHP

- Standardize allied healthcare education.
- Maintain professional and ethical standards.
- Develop competency-based curricula.
- Facilitate professional registration through Central and State Registers.
- Improve quality of healthcare services through skilled allied health professionals.

Competency-Based Curriculum (CBC)

A competency-based curriculum emphasizes:

- Practical and clinical competencies.
- Skill-based assessment.
- Outcome-oriented learning.
- Professional ethics and communication.
- Patient safety and quality assurance.

Medical Laboratory Technology (MLT)

Medical Laboratory Technologists assist in:

- Clinical laboratory investigations.
- Sample collection and processing.
- Diagnostic testing.
- Quality control in laboratories.



- Disease surveillance and public health programmes.

KEY HIGHLIGHTS

- **Initiative:** Competency-Based Curriculum for Diploma in Medical Laboratory Technology (DMLT).
- **Released By:** National Commission for Allied and Healthcare Professions (NCAHP).
- **Objective:** Standardize medical laboratory education and strengthen allied healthcare workforce.
- **Healthcare Significance:** Improves diagnostic quality, patient safety, and laboratory services.
- **Educational Significance:** Promotes outcome-based, skill-oriented, and competency-driven learning.
- **Economic Significance:** Enhances employability and addresses the growing demand for skilled laboratory professionals.
- **Challenges:** Faculty training, infrastructure gaps, uniform implementation, and continuous curriculum updation.
- **Way Forward:** Strengthen laboratory infrastructure, establish robust accreditation mechanisms, promote continuous professional development, integrate digital diagnostics, and ensure nationwide adoption of competency-based education.

PRELIMS BOOSTER BOX

- **NCAHP: National Commission for Allied and Healthcare Professions**, established under the **NCAHP Act, 2021** to regulate allied healthcare education and professions.
- **Administrative Ministry: Ministry of Health and Family Welfare.**
- **Competency-Based Curriculum (CBC):** Outcome-oriented curriculum emphasizing knowledge, practical skills, attitudes, and professional competencies.
- **Medical Laboratory Technology (MLT):** Allied healthcare discipline dealing with laboratory

diagnosis of diseases through analysis of biological samples.

- **DMLT: Diploma in Medical Laboratory Technology**, which trains professionals in clinical laboratory techniques and diagnostics.
- **Allied Healthcare Professionals:** Qualified professionals who support diagnosis, treatment, rehabilitation, and preventive healthcare across multiple disciplines.
- **Quality Assurance (QA):** Procedures that ensure the accuracy, reliability, and consistency of laboratory test results.
- **Biosafety:** Measures adopted to prevent exposure to infectious agents and ensure safe laboratory practices.
- **National Commission for Allied and Healthcare Professions Act, 2021:** Provides for regulation of allied healthcare education, maintenance of standards, and establishment of Central and State Registers.
- **Ten Professional Categories:** The NCAHP regulates **10 categories** of allied and healthcare professions, including **Medical Laboratory and Life Sciences**.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **National Commission for Allied and Healthcare Professions (NCAHP)** was established under the **National Commission for Allied and Healthcare Professions Act, 2021**.
2. A **competency-based curriculum** emphasizes practical skills, outcome-based learning, and professional competencies.
3. **Medical Laboratory Technology** is one of the professional categories regulated by the **NCAHP**.

Which of the statements given above is/are correct?

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

Answer: (d)

5. UNION MINISTER SHRI PIYUSH GOYAL ENGAGES WITH LEADING FINNISH TECHNOLOGY AND INDUSTRIAL COMPANIES TO DEEPEN INDIA–FINLAND PARTNERSHIP



- I. The Minister engaged with major Finnish companies to encourage greater investments and technology collaborations in India.
- II. Discussions covered sectors such as:
 - A. Advanced manufacturing.
 - B. Clean and green technologies.
 - C. Telecommunications and digital infrastructure.
 - D. Artificial Intelligence (AI).
 - E. Renewable energy.
 - F. Circular economy.
 - G. Smart mobility.
- III. India highlighted its strengths as a global manufacturing hub with a large domestic market, skilled workforce, and business-friendly reforms.
- IV. Finnish companies were invited to participate in flagship initiatives such as **Make in India**, **Digital India**, **Startup India**, and **Production Linked Incentive (PLI)** schemes.
- V. The engagement sought to strengthen bilateral trade, investment, innovation, and research collaboration.

- VI. Both sides emphasized sustainable industrial development, green transition, and resilient global supply chains.
- VII. The interactions are expected to deepen long-term economic and technological cooperation between the two countries.

BACKGROUND / CONTEXT

India–Finland Bilateral Relations

India and Finland share warm and friendly relations based on:

- Trade and investment.
- Science and technology.
- Education and research.
- Digitalization.
- Renewable energy.
- Circular economy.
- Innovation and startup ecosystems.
- Sustainable development.

Economic Cooperation

Key areas of collaboration include:

- Information and Communication Technology (ICT).
- 5G and 6G technologies.
- Artificial Intelligence (AI).
- Quantum technologies.
- Clean energy.
- Smart manufacturing.
- Forest-based bioeconomy.
- Green hydrogen and climate technologies.

Finland's Strengths

- Advanced telecommunications.
- Clean technology.
- Digital innovation.
- Education and skill development.
- Sustainable industrial solutions.
- Circular economy leadership.

KEY HIGHLIGHTS

- **Countries:** India and Finland.



- **Focus Areas:** Technology, manufacturing, innovation, sustainability, digital economy, and investments.
- **Economic Significance:** Promotes bilateral trade, foreign investment, technology transfer, and industrial cooperation.
- **Strategic Significance:** Strengthens resilient supply chains and partnerships in emerging technologies.
- **Environmental Significance:** Expands cooperation in clean energy, circular economy, and green industrialization.
- **Innovation Significance:** Encourages joint R&D, startup collaboration, and advanced technology partnerships.
- **Challenges:** Global economic uncertainties, evolving technology standards, supply-chain disruptions, and regulatory differences.
- **Way Forward:** Expand bilateral investment, strengthen innovation ecosystems, promote joint research, deepen collaboration in clean technologies and digital infrastructure, and leverage India's manufacturing ecosystem for global markets.

PRELIMS BOOSTER BOX

- **Capital of Finland:** Helsinki.
- **Currency:** Euro (€).
- **European Union (EU):** Finland has been a member since **1995**.
- **NATO:** Finland became a member of **NATO** in **2023**.
- **Make in India:** Launched in **2014** to promote manufacturing and attract investments.
- **Production Linked Incentive (PLI) Scheme:** Introduced in **2020** to boost domestic manufacturing in strategic sectors.
- **Digital India:** Launched on **1 July 2015** to transform India into a digitally empowered society.

- **Circular Economy:** Economic model focused on reducing waste through reuse, recycling, remanufacturing, and efficient resource use.
- **Green Hydrogen:** Hydrogen produced using renewable energy through electrolysis with minimal carbon emissions.
- **India–Nordic Cooperation:** India engages with Nordic countries (Denmark, Finland, Iceland, Norway, and Sweden) through the **India–Nordic Summit**, focusing on innovation, sustainability, climate action, and technology.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. **Finland** became a member of **NATO** in **2023**.
2. The **Production Linked Incentive (PLI) Scheme** was introduced in **2020** to promote domestic manufacturing in strategic sectors.
3. The **India–Nordic Summit** provides a platform for cooperation between India and the Nordic countries in areas such as innovation, sustainability, and technology.

Which of the statements given above is/are correct?

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

Answer: (d)

1. VIKRAM-1: CHARTING INDIA'S COSMIC FUTURE



- **Vikram-1** is an indigenously developed orbital launch vehicle designed by **Skyroot Aerospace**, a Hyderabad-based space technology startup.
- It is intended to launch **small satellites** into Low Earth Orbit (LEO), catering to the rapidly expanding global small satellite market.
- The rocket incorporates advanced technologies such as **carbon-composite structures**, **3D-printed engines**, and modular design to reduce launch costs and improve efficiency.
- Vikram-1 is expected to provide dedicated launch services, enabling quicker deployment of satellites compared to rideshare missions.
- The project showcases the growing capabilities of India's private space ecosystem following

the opening of the space sector to non-government entities.

- It complements ISRO's efforts by expanding India's commercial launch capacity and encouraging innovation.
- The mission supports the objectives of **Atmanirbhar Bharat, Make in India**, and the commercialization of space technology.
- Successful deployment of Vikram-1 would strengthen India's position in the global space economy.

BACKGROUND / CONTEXT

Skyroot Aerospace

- **Founded: 2018.**
- **Headquarters: Hyderabad, Telangana.**
- One of India's leading private space startups developing launch vehicles for small satellite missions.
- Achieved a major milestone with **Vikram-S**, India's first privately developed rocket to be successfully launched in **2022**.

Vikram-1 Launch Vehicle

- Designed as a **three-stage orbital launch vehicle**.
- Intended primarily for launching **small satellites** into **Low Earth Orbit (LEO)**.
- Key features include:
 - Carbon-fibre composite structures.
 - 3D-printed rocket engines.
 - High-performance propulsion systems.
 - Cost-effective and rapid launch capability.

India's Space Sector Reforms

- **2020:** Government opened the space sector to private participation.
- Establishment of **IN-SPACE (Indian National Space Promotion and Authorization Centre)** to promote and regulate private sector participation.



- **NewSpace India Limited (NSIL)** commercializes ISRO's space technologies and launch services.

KEY HIGHLIGHTS

- **Mission:** Vikram-1.
- **Developer:** Skyroot Aerospace.
- **Primary Objective:** Launch small satellites into Low Earth Orbit.
- **Technological Significance:** Demonstrates indigenous launch vehicle technology, 3D printing, and lightweight composite materials.
- **Economic Significance:** Expands India's commercial launch market and strengthens the private space ecosystem.
- **Strategic Significance:** Enhances self-reliance in space transportation and satellite deployment.
- **Challenges:** High launch costs, global competition, reliability validation, and scaling commercial operations.
- **Way Forward:** Strengthen public-private partnerships, expand launch infrastructure, encourage investment in space startups, and accelerate innovation in reusable launch technologies.

PRELIMS BOOSTER BOX

- **Skyroot Aerospace:** Hyderabad-based private space startup founded in **2018**.
- **Vikram-S:** India's first privately developed rocket successfully launched in **2022** under the **Prarambh Mission**.
- **Vikram-1:** Skyroot's first orbital launch vehicle designed for launching small satellites.
- **IN-SPACe (Indian National Space Promotion and Authorization Centre):** Established in **2020** as an autonomous agency under the **Department of Space** to promote and authorize private participation in the space sector.
- **NewSpace India Limited (NSIL):** Commercial arm of **ISRO**, incorporated in **2019** to

commercialize space technologies and launch services.

- **ISRO: Indian Space Research Organisation**, established in **1969** under the **Department of Space**.
- **Low Earth Orbit (LEO):** Orbit extending up to about **2,000 km** above Earth's surface; commonly used for Earth observation, communication, and scientific satellites.
- **Small Satellites:** Typically satellites weighing **less than 500 kg**, widely used for communication, remote sensing, navigation, and research.
- **3D Printing (Additive Manufacturing):** Technology used to manufacture complex rocket components with reduced material wastage and shorter production time.
- **Indian Space Policy, 2023:** Encourages greater participation of non-government entities in the entire space value chain.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. **Vikram-1** is an orbital launch vehicle being developed by **Skyroot Aerospace**.
2. **IN-SPACe** is an autonomous agency under the **Department of Space** that promotes and authorizes private participation in India's space sector.
3. **Low Earth Orbit (LEO)** generally extends up to about **2,000 km** above the Earth's surface.

Which of the statements given above is/are correct?

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

Answer: (d)

2. NATIONAL COMMISSION FOR SAFAI KARAMCHARIS REVIEWS SANITATION AND WELFARE FACILITIES



- The Commission reviewed the availability of sanitation infrastructure, safety equipment, rehabilitation measures, and welfare facilities for Safai Karamcharis.
- It stressed the need for **100% mechanization of sewer and septic tank cleaning** to eliminate hazardous manual cleaning.
- Discussions focused on providing adequate **Personal Protective Equipment (PPE)**, occupational safety, health insurance, and social security benefits.
- The Commission emphasized strict implementation of laws prohibiting manual scavenging and ensuring rehabilitation of affected persons.
- It reviewed the progress of schemes aimed at the socio-economic empowerment and skill development of sanitation workers.
- The initiative supports the objectives of **Swachh Bharat Mission (SBM)** by promoting safe and dignified sanitation services.
- The review also highlighted the importance of coordination among State Governments, Urban

Local Bodies (ULBs), and implementing agencies.

- Strengthening sanitation worker welfare contributes to inclusive urban development and public health.

BACKGROUND / CONTEXT

National Commission for Safai Karamcharis (NCSK)

- **Constituted: 1994** under the **National Commission for Safai Karamcharis Act, 1993**.
- It currently functions as a **non-statutory body** under the **Ministry of Social Justice and Empowerment**, with its tenure extended periodically by the Government.
- Advises the Government on issues relating to the welfare, rehabilitation, and socio-economic development of Safai Karamcharis.

Functions of NCSK

- Monitor the implementation of welfare measures.
- Recommend policies for rehabilitation and social security.
- Review grievances relating to Safai Karamcharis.
- Promote occupational safety and dignity of labour.
- Monitor implementation of laws relating to manual scavenging.

Manual Scavenging

- Refers to the manual cleaning, carrying, disposing, or handling of human excreta from insanitary latrines, open drains, sewers, or septic tanks, as prohibited by law.

MAJOR GOVERNMENT INITIATIVES

Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013

- Prohibits manual scavenging.



- Provides for identification, liberation, and rehabilitation of manual scavengers.
- Bans hazardous manual cleaning of sewers and septic tanks except under strictly regulated emergency conditions with prescribed safety measures.

NAMASTE Scheme

- National Action for Mechanised Sanitation Ecosystem (NAMASTE).**
- Jointly implemented by the **Ministry of Social Justice and Empowerment** and the **Ministry of Housing and Urban Affairs**.
- Promotes:
 - Mechanized sewer cleaning.
 - Occupational safety.
 - Skill development.
 - Health insurance.
 - Livelihood support for sanitation workers.

Swachh Bharat Mission (SBM)

- Promotes scientific sanitation, safe waste management, and elimination of insanitary practices.

KEY HIGHLIGHTS

- **Organisation:** National Commission for Safai Karamcharis (NCSK).
- **Focus:** Welfare, safety, rehabilitation, and dignity of sanitation workers.
- **Primary Objective:** Eliminate hazardous sanitation practices and strengthen worker welfare.
- **Social Significance:** Promotes dignity, social justice, and inclusion of sanitation workers.
- **Health Significance:** Reduces occupational hazards through mechanization and safety measures.
- **Governance Significance:** Improves implementation of sanitation and labour welfare policies.

- **Challenges:** Incomplete mechanization, unsafe working conditions, inadequate protective equipment, and social stigma.
- **Way Forward:** Accelerate mechanized sanitation, ensure universal PPE coverage, strengthen rehabilitation and social security, improve skill development, and enforce anti-manual scavenging laws effectively.

PRELIMS BOOSTER BOX

- **National Commission for Safai Karamcharis (NCSK):** Constituted in **1994**; currently functions as a **non-statutory body** under the **Ministry of Social Justice and Empowerment**.
- **National Commission for Safai Karamcharis Act, 1993:** Established the original statutory Commission; the Act later lapsed, and the Commission continues through periodic extensions.
- **Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013:** Prohibits manual scavenging and provides for rehabilitation of identified manual scavengers.
- **NAMASTE: National Action for Mechanised Sanitation Ecosystem**, launched in **2022** to promote mechanized sanitation and improve the safety and livelihoods of sanitation workers.
- **Swachh Bharat Mission (SBM):** Launched on **2 October 2014** to achieve universal sanitation and scientific waste management.
- **Personal Protective Equipment (PPE):** Includes gloves, helmets, masks, boots, and protective clothing to reduce occupational risks.
- **Manual Scavenging:** Practice of manually cleaning or handling human excreta; prohibited under Indian law.
- **Article 21:** Guarantees the **Right to Life and Personal Liberty**, interpreted by the Supreme Court to include the right to live with dignity.
- **Article 46:** Directs the State to promote the educational and economic interests of weaker sections and protect them from social injustice and exploitation.

- **Occupational Safety:** Measures adopted to protect workers from workplace hazards and ensure safe working conditions.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **National Commission for Safai Karamcharis (NCSK)** currently functions as a **non-statutory body** under the **Ministry of Social Justice and Empowerment**.
2. The **Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013** prohibits manual scavenging and provides for the rehabilitation of identified manual scavengers.
3. The **NAMASTE Scheme** promotes mechanized sanitation and improves the safety and welfare of sanitation workers.

Which of the statements given above is/are correct?

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

Answer: (d)

3. OPERATION SINDOOR DEMONSTRATED INDIA'S WORLD-CLASS DEFENCE READINESS SHARPENED BY GOVERNMENT'S 'NATION FIRST' & 'FORCES FIRST' RESOLVE: RAKSHA MANTRI



- I. **Operation Sindoor** showcased India's enhanced military readiness, operational preparedness, and jointness among the Armed Forces.
- II. The Raksha Mantri emphasized that sustained investments in defence modernization, indigenous manufacturing, and force capability enhancement have significantly strengthened India's defence posture.
- III. The operation highlighted the effectiveness of:
 - A. Joint military planning.
 - B. Advanced surveillance and intelligence.
 - C. Precision strike capabilities.
 - D. Network-centric warfare.
 - E. Indigenous defence technologies.
- IV. It reaffirmed the Government's commitment to ensuring the highest standards of operational readiness under the principles of **"Nation First"** and **"Forces First"**.
- V. The operation also reflected the increasing role of **Aatmanirbhar Bharat in Defence**, with greater reliance on indigenously developed defence equipment.
- VI. It demonstrated India's ability to respond swiftly to emerging security challenges while maintaining strategic deterrence.
- VII. The success reinforces India's objective of building a modern, self-reliant, and technologically advanced military.

BACKGROUND / CONTEXT

Operation Sindoor

- I. A significant military operation highlighting the preparedness, coordination, and operational capability of the Indian Armed Forces.
- II. Demonstrated:
 - A. Jointness among the Army, Navy, and Air Force.
 - B. Technology-enabled military operations.
 - C. Rapid response capability.



- D. Precision engagement.
- E. High operational efficiency.

Aatmanirbhar Bharat in Defence

- I. Seeks to strengthen indigenous defence manufacturing and reduce import dependence.
- II. Focus areas include:
 - A. Defence production.
 - B. Defence exports.
 - C. Research and Development.
 - D. Innovation.
 - E. Private sector participation.

Integrated Theatre Commands (ITCs)

- Proposed integrated command structure to enhance synergy among the three Services.
- Intended to improve operational efficiency, resource utilization, and joint warfighting capability.

KEY HIGHLIGHTS

- **Operation:** Operation Sindoor.
- **Focus:** Defence preparedness and operational readiness.
- **Lead Ministry:** Ministry of Defence.
- **Strategic Significance:** Enhances deterrence, national security, and rapid military response capability.
- **Technological Significance:** Demonstrates advanced surveillance, precision strike, and network-centric warfare capabilities.
- **Industrial Significance:** Highlights the role of indigenous defence production under Aatmanirbhar Bharat.
- **Challenges:** Evolving security threats, cyber warfare, emerging technologies, and maintaining high operational readiness.
- **Way Forward:** Accelerate defence modernization, strengthen indigenous R&D, promote jointness through Integrated Theatre Commands, expand defence exports, and

invest in emerging technologies such as AI, drones, and cyber defence.

PRELIMS BOOSTER BOX

- **Operation Sindoor:** A military operation showcasing India's defence preparedness, jointness, and technological capability.
- **Ministry of Defence (MoD):** Responsible for coordinating and supervising all agencies relating to India's national defence.
- **Chief of Defence Staff (CDS):** Permanent head of the military's higher defence organization responsible for promoting jointness among the three Services.
- **Department of Military Affairs (DMA):** Created in **2019** under the **Ministry of Defence** and headed by the CDS.
- **Integrated Theatre Commands (ITCs):** Proposed unified military commands integrating resources of the Army, Navy, and Air Force for specific geographical or functional theatres.
- **Network-Centric Warfare (NCW):** Military operations enabled through integrated communication, surveillance, intelligence, and information-sharing networks.
- **Aatmanirbhar Bharat in Defence:** Initiative promoting indigenous design, development, manufacturing, and export of defence equipment.
- **Defence Acquisition Procedure (DAP) 2020:** Prioritizes procurement of indigenously designed, developed, and manufactured defence equipment.
- **Defence Industrial Corridors:** Established in **Uttar Pradesh** and **Tamil Nadu** to promote defence manufacturing.
- **Make in India (Defence):** Initiative encouraging domestic production and reducing dependence on defence imports.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:



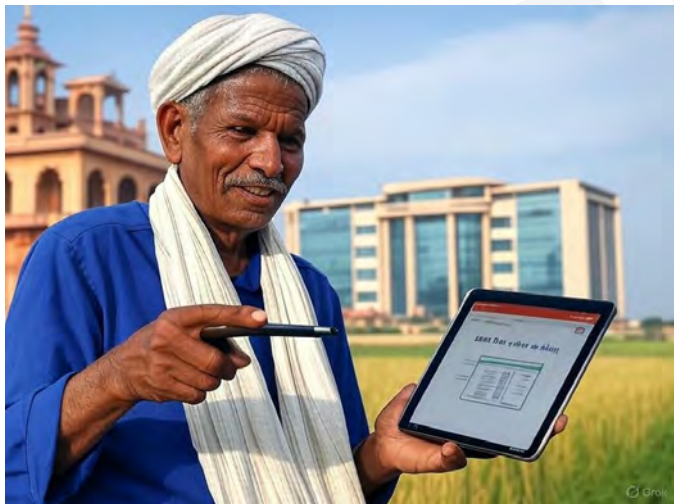
1. The **Department of Military Affairs (DMA)** was created in **2019** under the **Ministry of Defence** and is headed by the **Chief of Defence Staff (CDS)**.
2. **Integrated Theatre Commands (ITCs)** aim to enhance joint operational capability among the Army, Navy, and Air Force.
3. The **Defence Acquisition Procedure (DAP) 2020** prioritizes procurement of indigenously designed, developed, and manufactured defence equipment.

Which of the statements given above is/are correct?

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

Answer: (d)

4. DEPARTMENT OF LAND RESOURCES EXPLORES CONVERGENCE OF DIGITAL PUBLIC INFRASTRUCTURE FOR LAND AND CREDIT WITH RBI INNOVATION HUB



- The proposed convergence seeks to integrate **digitized land records** with digital credit platforms to enable faster, transparent, and secure lending.

- Digitally verified land ownership records can simplify collateral verification, reducing delays in loan processing.
- The initiative is expected to improve access to institutional credit for farmers, rural households, and MSMEs.
- It supports the creation of interoperable Digital Public Infrastructure (DPI) for land governance and financial services.
- The integration will enhance transparency, reduce disputes, and minimize fraud in land-based lending.
- It complements ongoing land record modernization efforts under the **Digital India Land Records Modernization Programme (DILRMP)**.
- The initiative aligns with the Government's vision of **Digital India, financial inclusion, and ease of doing business**.
- It is expected to improve credit penetration while strengthening land governance and property rights.

BACKGROUND / CONTEXT

Department of Land Resources (DoLR)

- I. Functions under the **Ministry of Rural Development**.
- II. Responsible for:
 - A. Land reforms.
 - B. Land record modernization.
 - C. Watershed development.
 - D. Land governance.

RBI Innovation Hub (RBIH)

- **Established: 2022.**
- A wholly owned subsidiary of the **Reserve Bank of India (RBI)**.
- Promotes innovation in financial services by developing technology-driven solutions for financial inclusion and digital finance.

Digital Public Infrastructure (DPI)

Digital Public Infrastructure comprises interoperable digital systems that enable efficient delivery of public and financial services.

India's major DPI pillars include:

- Aadhaar.
- UPI.
- DigiLocker.
- Account Aggregator Framework.
- Digital Land Records.

RELATED GOVERNMENT INITIATIVES

Digital India Land Records Modernization Programme (DILRMP)

- Launched: 2008** (renamed in 2016).
- Nodal Ministry:** Ministry of Rural Development.
- Objectives:**
 - A. Digitization of land records.
 - B. Computerization of registration.
 - C. Integration of textual and spatial records.
 - D. Reduction in land disputes.

SVAMITVA Scheme

- **Launched: 2020.**
- Implemented by the **Ministry of Panchayati Raj**.
- Uses drone technology to provide legal ownership records (Property Cards) for residential properties in rural inhabited areas.

Account Aggregator (AA) Framework

- RBI-regulated consent-based framework enabling secure sharing of financial information to facilitate faster and more efficient digital lending.

KEY HIGHLIGHTS

- **Initiative:** Convergence of Digital Public Infrastructure for Land and Credit.
- **Lead Agencies:** Department of Land Resources (DoLR) and RBI Innovation Hub (RBIH).

- **Objective:** Improve access to formal credit through authenticated digital land records.
- **Economic Significance:** Enhances financial inclusion, credit availability, and ease of doing business.
- **Governance Significance:** Promotes transparent land administration and efficient land governance.
- **Technological Significance:** Strengthens interoperable Digital Public Infrastructure (DPI).
- **Challenges:** Variations in land record quality across States, unresolved land disputes, interoperability issues, data privacy, and cybersecurity.
- **Way Forward:** Complete nationwide digitization of land records, integrate cadastral maps with registration systems, strengthen data security, promote interoperability across platforms, and expand digital lending ecosystems using trusted land data.

PRELIMS BOOSTER BOX

- **Department of Land Resources (DoLR):** Department under the **Ministry of Rural Development** responsible for land reforms and land record modernization.
- **RBI Innovation Hub (RBIH):** Established in **2022** as a wholly owned subsidiary of the **Reserve Bank of India** to promote innovation in financial services.
- **Digital India Land Records Modernization Programme (DILRMP):** Launched in **2008** to modernize and digitize land records across India.
- **SVAMITVA Scheme:** Launched in **2020** by the **Ministry of Panchayati Raj** to provide legal ownership records for rural residential properties using drone surveys.
- **Digital Public Infrastructure (DPI):** Foundational digital systems enabling secure, interoperable delivery of public and financial services (e.g., Aadhaar, UPI, DigiLocker).



- **Account Aggregator (AA):** RBI-regulated consent-based data-sharing framework facilitating secure exchange of financial information.
- **Cadastral Map:** A detailed map showing land parcel boundaries and ownership information.
- **Financial Inclusion:** Ensuring affordable access to banking, credit, insurance, and other financial services.
- **Collateral:** An asset pledged by a borrower to secure a loan.
- **Ease of Doing Business:** Reforms aimed at simplifying regulatory processes and improving access to finance and public services.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **Digital India Land Records Modernization Programme (DILRMP)** aims to digitize and modernize land records across India.
2. The **SVAMITVA Scheme** provides legal ownership records for residential properties in rural inhabited areas using drone surveys.
3. The **RBI Innovation Hub (RBIH)** is a wholly owned subsidiary of the **Reserve Bank of India** established to promote innovation in financial services.

Which of the statements given above is/are correct?

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

Answer: (d)

5. SHRI PRALHAD JOSHI COMMISSIONS WHITE RABBIT TECHNOLOGY-BASED INDIAN STANDARD TIME (IST) DISSEMINATION DEMONSTRATION NETWORK IN BENGALURU



- I. The demonstration network uses **White Rabbit (WR) technology** to disseminate **Indian Standard Time (IST)** with **sub-nanosecond accuracy** over optical fibre networks.
- II. It is designed to provide synchronized and highly accurate timing for critical sectors such as:
 - A. Telecommunications.
 - B. Power grids.
 - C. Banking and financial services.
 - D. Defence.
 - E. Space.
 - F. Scientific research.
- III. The network reduces dependence on foreign satellite-based timing systems such as GPS for precision timing.
- IV. It enhances cybersecurity by providing a trusted indigenous time synchronization framework.



- V. The initiative supports the vision of **Digital India, Aatmanirbhar Bharat**, and the development of resilient digital public infrastructure.
- VI. It also strengthens India's National Time Scale and improves the reliability of time-sensitive digital services.
- VII. The demonstration marks a major step towards nationwide deployment of a secure and indigenous precision timing network.

BACKGROUND / CONTEXT

Indian Standard Time (IST)

- India's official time standard.
- Based on **82°30' East longitude**, passing near **Mirzapur (Uttar Pradesh)**.
- **UTC +5:30** (5 hours 30 minutes ahead of Coordinated Universal Time).

White Rabbit (WR) Technology

- I. An **Ethernet-based precision timing protocol** that combines:
 - A. **Precision Time Protocol (PTP – IEEE 1588)**.
 - B. **Synchronous Ethernet (SyncE)**.
- II. Enables synchronization of clocks with **sub-nanosecond accuracy** over optical fibre networks.
- III. Widely used in:
 - A. Scientific research.
 - B. Particle accelerators.
 - C. Telecommunications.
 - D. Power systems.
 - E. Defence and aerospace.

National Physical Laboratory (NPL)

- India's custodian of the **Indian Standard Time**.
- Functions under the **Council of Scientific and Industrial Research (CSIR)**.
- Maintains the National Time Scale and calibration standards.

KEY HIGHLIGHTS

- **Initiative:** White Rabbit Technology-based IST Dissemination Demonstration Network.
- **Location:** Bengaluru.
- **Objective:** Disseminate highly accurate and secure Indian Standard Time across India.
- **Lead Institution:** National Physical Laboratory (NPL), under CSIR.
- **Technological Significance:** Enables sub-nanosecond time synchronization using optical fibre.
- **Strategic Significance:** Reduces dependence on foreign timing systems and strengthens national security.
- **Economic Significance:** Supports reliable digital financial transactions, telecom networks, and smart infrastructure.
- **Challenges:** Nationwide fibre connectivity, infrastructure costs, interoperability, and cybersecurity.
- **Way Forward:** Expand the network nationwide, integrate with critical infrastructure, strengthen indigenous timing capabilities, and promote adoption across industry and government sectors.

PRELIMS BOOSTER BOX

- **Indian Standard Time (IST):** India's official time standard based on **82°30' East longitude; UTC +5:30**.
- **Reference Meridian:** Passes near **Mirzapur, Uttar Pradesh**.
- **White Rabbit (WR) Technology:** High-precision time synchronization technology providing **sub-nanosecond accuracy** over optical fibre networks.
- **Precision Time Protocol (PTP): IEEE 1588** standard used for synchronizing clocks across computer networks.
- **Synchronous Ethernet (SyncE):** Technology that distributes precise frequency synchronization over Ethernet networks.



- **National Physical Laboratory (NPL):** India's national metrology institute under **CSIR**, responsible for maintaining the **Indian Standard Time**.
- **CSIR (Council of Scientific and Industrial Research):** Established in **1942**; one of India's largest publicly funded R&D organizations.
- **Coordinated Universal Time (UTC):** International reference time standard used worldwide.
- **Metrology:** The science of measurement, including standards of time, length, mass, and other physical quantities.
- **Applications of Precision Timing:** Telecommunications, stock exchanges, power grid synchronization, satellite navigation, defence systems, and scientific research.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. **Indian Standard Time (IST)** is based on the **82°30' East longitude** and is **UTC +5:30**.
2. **White Rabbit Technology** enables **sub-nanosecond precision time synchronization** over optical fibre networks.
3. The **National Physical Laboratory (NPL)**, under **CSIR**, is the custodian of India's **National Time Scale**.

Which of the statements given above is/are correct?

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

Answer: (d)

1. CATCH THE RAIN: A RENEWED NATIONAL CALL FOR WATER CONSERVATION



- VIII. The initiative advances **SDG 6 (Clean Water and Sanitation)** and strengthens India's water security.

BACKGROUND / CONTEXT

Jal Shakti Abhiyan: Catch the Rain

- **Launched: 2021.**
- **Nodal Ministry: Ministry of Jal Shakti.**
- Theme:
"Catch the Rain – Where it Falls, When it Falls."
- Focuses on decentralized and community-driven water conservation.

Objectives

- Promote rainwater harvesting.
- Recharge groundwater.
- Restore traditional water bodies.
- Improve water-use efficiency.
- Strengthen community participation.
- Build climate resilience through sustainable water management.

Major Activities

- Rooftop rainwater harvesting.
- Renovation of ponds, lakes, and tanks.
- Construction of recharge structures.
- Desilting of water bodies.
- Afforestation and watershed development.
- Public awareness campaigns.

KEY HIGHLIGHTS

- **Campaign:** Catch the Rain.
- **Nodal Ministry:** Ministry of Jal Shakti.
- **Primary Objective:** Rainwater harvesting and water conservation through community participation.
- **Environmental Significance:** Enhances groundwater recharge, improves ecosystem health, and supports climate resilience.
- **Economic Significance:** Improves water availability for agriculture, industry, and domestic use.

- Catch the Rain** is a flagship water conservation campaign under the **Jal Shakti Abhiyan**.
- The campaign promotes rainwater harvesting before and during the monsoon season through people's participation (**Jan Bhagidari**).
- It encourages construction, repair, and rejuvenation of:
 - Rainwater harvesting structures.
 - Check dams.
 - Ponds and tanks.
 - Stepwells.
 - Recharge pits.
 - Traditional water bodies.
- The initiative emphasizes local planning based on rainfall patterns and geographical conditions.
- Community participation, convergence of government schemes, and involvement of Panchayati Raj Institutions and Urban Local Bodies are key features.
- The campaign contributes to groundwater recharge, improved water availability, drought resilience, and climate adaptation.
- It supports sustainable water resource management and aligns with the vision of **Jal Sanchay, Jan Bhagidari**.



- **Social Significance:** Encourages people's participation and strengthens local water governance.
- **Challenges:** Declining groundwater levels, urbanization, pollution of water bodies, climate variability, and limited public awareness.
- **Way Forward:** Scale up rainwater harvesting, rejuvenate traditional water bodies, strengthen watershed management, leverage GIS and remote sensing for water planning, and encourage behavioural change towards efficient water use.

PRELIMS BOOSTER BOX

- **Catch the Rain Campaign:** Launched in **2021** under the **Jal Shakti Abhiyan** with the theme "**Catch the Rain – Where it Falls, When it Falls.**"
- **Nodal Ministry:** **Ministry of Jal Shakti.**
- **Jal Shakti Abhiyan:** National campaign promoting water conservation and water security through convergence and community participation.
- **Rainwater Harvesting:** Collection and storage of rainwater for future use and groundwater recharge.
- **Groundwater Recharge:** Process of replenishing underground aquifers through infiltration of surface water.
- **Atal Bhujal Yojana (Atal Jal):** Central Sector Scheme launched in **2019** to improve groundwater management in water-stressed areas through community participation.
- **Jal Jeevan Mission (JJM):** Launched in **2019** to provide **Functional Household Tap Connections (FHTCs)** to every rural household.
- **National Water Mission:** One of the **eight missions** under the **National Action Plan on Climate Change (NAPCC)**; aims to conserve water, minimize wastage, and ensure equitable distribution.
- **Watershed Management:** Integrated management of land, water, and vegetation

resources within a drainage basin to conserve soil and water.

- **SDG 6:** Ensure availability and sustainable management of water and sanitation for all.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **Catch the Rain** campaign was launched under the **Jal Shakti Abhiyan** by the **Ministry of Jal Shakti**.
2. The campaign promotes rainwater harvesting under the theme "**Where it Falls, When it Falls.**"
3. The **National Water Mission** is one of the eight missions under the **National Action Plan on Climate Change (NAPCC)**.

Which of the statements given above is/are correct?

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

Answer: (d)

2. FROM BANANA FARMS TO MAKHANA MARKETS: THE HIGHWAY SET TO POWER BIHAR'S AGRICULTURAL HEARTLAND



- I. The highway will enhance transportation infrastructure across key agricultural districts of Bihar.
- II. It aims to facilitate faster movement of agricultural produce such as:
 - A. **Banana.**



- B. **Makhana (Fox Nut/Gorgon Nut).**
 - C. Fruits and vegetables.
 - D. Other horticultural produce.
- III. Improved connectivity is expected to reduce post-harvest losses and transportation time.
- IV. Farmers will benefit from better access to markets, processing centres, storage facilities, and export hubs.
- V. The project supports agricultural diversification and strengthens rural supply chains.
- VI. Enhanced road infrastructure is expected to attract investments in food processing, warehousing, and logistics.
- VII. The initiative aligns with the Government's vision of integrated infrastructure development under **PM Gati Shakti**.
- VIII. It contributes to inclusive regional development and rural employment generation.

BACKGROUND / CONTEXT

Agricultural Importance of Bihar

Bihar is a leading producer of:

- **Makhana (Fox Nut)** – contributing **over 80%** of India's production.
- Banana.
- Litchi.
- Maize.
- Vegetables.
- Rice and wheat.

Makhana

- Derived from the aquatic plant **Euryale ferox**.
- Cultivated mainly in ponds and wetlands.
- Rich in protein, fibre, antioxidants, and minerals.
- Holds significant export potential.

Banana Cultivation

Major banana-producing districts include:

- Katihar.
- Purnia.
- Bhagalpur.
- Vaishali.

- Muzaffarpur and surrounding regions.

PM Gati Shakti National Master Plan

- **Launched: 2021.**
- Aims to integrate infrastructure planning across sectors.
- Promotes multimodal connectivity and logistics efficiency.

KEY HIGHLIGHTS

- **Project:** Highway connectivity across Bihar's agricultural belt.
- **Focus Crops:** Banana, Makhana, horticultural produce.
- **Economic Significance:** Reduces logistics costs, improves farmer incomes, and boosts agro-processing.
- **Agricultural Significance:** Enhances market access and strengthens agricultural value chains.
- **Infrastructure Significance:** Supports multimodal logistics and regional connectivity.
- **Employment Significance:** Encourages investments in food processing, warehousing, transport, and allied sectors.
- **Challenges:** Land acquisition, timely project execution, maintenance, and ensuring integration with storage and processing infrastructure.
- **Way Forward:** Develop integrated agri-logistics hubs, expand cold-chain infrastructure, strengthen Farmer Producer Organizations (FPOs), promote value addition, and improve export connectivity.

PRELIMS BOOSTER BOX

- I. **Makhana (Fox Nut):**
- A. Scientific Name: **Euryale ferox**.
 - B. Aquatic crop cultivated in ponds and wetlands.
 - C. Bihar accounts for **over 80%** of India's production.



- II. **GI Tag: Mithila Makhana** received the **Geographical Indication (GI)** tag in **2022**.
- III. **Banana:** One of Bihar's major horticultural crops with significant domestic market potential.
- IV. **PM Gati Shakti National Master Plan:** Launched in **2021** to promote integrated infrastructure planning and multimodal connectivity.
- V. **National Logistics Policy (NLP), 2022:** Seeks to reduce logistics costs and improve India's logistics performance.
- VI. **Farmer Producer Organization (FPO):** Collective of farmers that enhances bargaining power, market access, and value addition.
- VII. **Cold Chain:** Temperature-controlled supply chain for preserving perishable agricultural produce.
- VIII. **Value Addition:** Processing agricultural produce into higher-value products to increase farmers' incomes.
- IX. **Agri-Logistics:** Infrastructure and services supporting storage, transportation, processing, and marketing of agricultural produce.
- X. **Pradhan Mantri Kisan SAMPADA Yojana (PMKSY):** Scheme to promote modern food processing infrastructure and reduce post-harvest losses.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. **Mithila Makhana** has been granted a **Geographical Indication (GI)** tag.
2. **PM Gati Shakti National Master Plan** aims to promote integrated infrastructure planning and multimodal connectivity.
3. The **National Logistics Policy, 2022** seeks to reduce logistics costs and improve India's logistics efficiency.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
(b) 2 and 3 only

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

Answer: (d)

3. INDIAN AIR FORCE PARTICIPATES IN EXERCISE PITCH BLACK 2026 AT DARWIN, AUSTRALIA



- I. **Exercise Pitch Black** is one of the world's largest multinational air warfare exercises, hosted biennially by the **Royal Australian Air Force (RAAF)**.
- II. The IAF's participation reflects India's growing defence cooperation with Australia and Indo-Pacific partners.
- III. The exercise focuses on:
 - A. Complex air combat operations.
 - B. Large Force Employment (LFE) missions.
 - C. Air-to-air and air-to-ground operations.
 - D. Integrated planning and execution.
 - E. Coalition warfare.
- IV. It provides an opportunity for participating air forces to exchange operational best practices and enhance combat readiness.
- V. The exercise strengthens India's strategic partnerships under the vision of a **Free, Open, Inclusive and Rules-Based Indo-Pacific**.
- VI. It also contributes to improving interoperability with friendly foreign air forces in humanitarian



assistance, disaster relief, and security operations.

- VII. The exercise reflects India's commitment to regional stability and defence diplomacy.

BACKGROUND / CONTEXT

Exercise Pitch Black

- Hosted by the **Royal Australian Air Force (RAAF)**.
- Conducted **biennially**.
- **Venue: RAAF Base Darwin**, Northern Territory, Australia.
- Named after the **dark night skies** over northern Australia, which provide ideal conditions for night flying and air combat training.

Objectives

- Improve interoperability among participating air forces.
- Conduct realistic multinational air combat training.
- Enhance operational planning and mission execution.
- Strengthen coalition warfare capabilities.
- Foster defence cooperation and mutual understanding.

India–Australia Defence Cooperation

India and Australia cooperate through:

- **Comprehensive Strategic Partnership (CSP)** (2020).
- **2+2 Ministerial Dialogue**.
- **Mutual Logistics Support Arrangement (MLSA)** (2020).
- **Malabar Naval Exercise** (with the Quad countries).
- Bilateral military exercises such as **AUSINDEX**.

KEY HIGHLIGHTS

- **Exercise:** Pitch Black 2026.
- **Host:** Royal Australian Air Force (RAAF).
- **Venue:** Darwin, Northern Territory, Australia.
- **Indian Participant:** Indian Air Force (IAF).

- **Strategic Significance:** Enhances interoperability, coalition warfare capability, and Indo-Pacific security cooperation.
- **Operational Significance:** Improves readiness for multinational air operations and complex combat missions.
- **Diplomatic Significance:** Strengthens India–Australia defence partnership and military diplomacy.
- **Challenges:** Coordinating multinational operations, integrating diverse platforms, and adapting to evolving air warfare technologies.
- **Way Forward:** Expand joint training, deepen defence technology cooperation, strengthen interoperability, and enhance collaboration in emerging domains such as cyber, space, and unmanned systems.

PRELIMS BOOSTER BOX

- **Exercise Pitch Black:** Biennial multinational air combat exercise hosted by the **Royal Australian Air Force (RAAF)**.
- **Venue: RAAF Base Darwin**, Northern Territory, Australia.
- **Host Country:** Australia.
- **Royal Australian Air Force (RAAF):** Air warfare branch of the **Australian Defence Force (ADF)**.
- **Comprehensive Strategic Partnership (CSP):** Established between **India and Australia** in **2020** to deepen cooperation in defence, trade, critical minerals, education, and technology.
- **Mutual Logistics Support Arrangement (MLSA):** Signed in **2020**, enabling reciprocal access to military logistics facilities.
- **Malabar Exercise:** Multilateral naval exercise involving **India, Australia, Japan, and the United States (Quad members)**.
- **Quad:** Strategic grouping comprising **India, Australia, Japan, and the United States**, promoting a **Free, Open, Inclusive, and Rules-Based Indo-Pacific**.



- **Interoperability:** Ability of armed forces from different countries to operate together effectively through compatible procedures, communication, and logistics.
- **Large Force Employment (LFE):** Coordinated military operations involving a large number of aircraft executing complex missions.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. **Exercise Pitch Black** is a **biennial multinational air combat exercise** hosted by the **Royal Australian Air Force (RAAF)**.
2. The **Mutual Logistics Support Arrangement (MLSA)** between India and Australia was signed in **2020**.
3. The **Quad** comprises **India, Australia, Japan, and the United States**.

Which of the statements given above is/are correct?

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

Answer: (d)

4. INDIAN TEAM WINS 1 GOLD AND 3 SILVER MEDALS AT THE 37TH INTERNATIONAL BIOLOGY OLYMPIAD (IBO) 2026 IN VILNIUS, LITHUANIA



- I. India participated in the **37th International Biology Olympiad (IBO) 2026**, one of the world's

most prestigious competitions for school students in biology.

- II. The Indian contingent secured:
 - A. **1 Gold Medal**
 - B. **3 Silver Medals**
- III. The Olympiad tested participants in:
 - A. Molecular biology.
 - B. Genetics.
 - C. Ecology.
 - D. Evolution.
 - E. Plant and animal physiology.
 - F. Practical laboratory skills.
- IV. The success highlights the effectiveness of India's national science talent identification and Olympiad training programmes.
- V. The achievement inspires greater interest in life sciences, research, biotechnology, and innovation among students.
- VI. It strengthens India's reputation in international scientific competitions and reflects the country's growing emphasis on quality STEM education.
- VII. The accomplishment aligns with the objectives of the **National Education Policy (NEP) 2020**, which promotes scientific temper, inquiry-based learning, and research culture.

BACKGROUND / CONTEXT

International Biology Olympiad (IBO)

- I. An annual international competition for **pre-university school students**.
- II. Brings together the world's best young biology students.
- III. Objectives:
 - A. Promote excellence in biology.
 - B. Encourage scientific thinking.
 - C. Foster international collaboration.
 - D. Develop future scientists and researchers.

Indian Participation

- India selects its team through the **National Olympiad Programme**.
- The programme is coordinated by the **Homi Bhabha Centre for Science Education (HBCSE)**, a constituent institution of the **Tata Institute of Fundamental Research (TIFR)**.
- Students undergo rigorous national-level selection and training before representing India internationally.

KEY HIGHLIGHTS

- **Event:** 37th International Biology Olympiad (IBO) 2026.
- **Venue:** Vilnius, Lithuania.
- **India's Performance:** 1 Gold Medal and 3 Silver Medals.
- **Academic Significance:** Encourages excellence in biology and scientific research.
- **Educational Significance:** Promotes inquiry-based learning and practical laboratory skills.
- **National Significance:** Demonstrates India's growing global competitiveness in STEM education.
- **Challenges:** Expanding access to quality science education, laboratory infrastructure, and advanced research opportunities.
- **Way Forward:** Strengthen science education, expand Olympiad training programmes, promote research culture, improve laboratory facilities, and encourage innovation among young learners.

PRELIMS BOOSTER BOX

- **International Biology Olympiad (IBO):** Prestigious annual international competition for **pre-university students** in biology.
- **37th IBO (2026):** Hosted by **Vilnius, Lithuania**.
- **Indian Selection Agency:** **Homi Bhabha Centre for Science Education (HBCSE)**.

- **HBCSE:** Constituent institution of the **Tata Institute of Fundamental Research (TIFR)**; coordinates India's National Olympiad Programme.
- **TIFR:** Premier research institution established in **1945** and funded by the **Department of Atomic Energy (DAE)**.
- **National Olympiad Programme:** Multi-stage selection process that identifies and trains Indian students for International Science Olympiads.
- **National Education Policy (NEP) 2020:** Emphasizes experiential learning, scientific temper, innovation, and research.
- **STEM:** Science, Technology, Engineering, and Mathematics.
- **Scientific Temper:** A Fundamental Duty under **Article 51A(h)** of the Constitution, requiring citizens to develop scientific temper, humanism, and the spirit of inquiry and reform.
- **International Science Olympiads:** Global competitions held annually in subjects such as Mathematics, Physics, Chemistry, Biology, Informatics, Astronomy & Astrophysics, and Artificial Intelligence.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **International Biology Olympiad (IBO)** is an annual competition for **pre-university school students**.
2. The **Homi Bhabha Centre for Science Education (HBCSE)** coordinates India's National Olympiad Programme for selecting students for international science Olympiads.
3. **Article 51A(h)** of the Constitution makes it a Fundamental Duty to develop scientific temper, humanism, and the spirit of inquiry and reform.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

Answer: (d)

5. NAMASTE SCHEME ENSURES DIGNITY, SAFETY, AND SOCIAL SECURITY FOR SANITATION WORKERS



- I. **NAMASTE** aims to eliminate hazardous manual cleaning of sewers and septic tanks through complete mechanization.
- II. The scheme seeks to improve the **occupational safety, health, dignity, and livelihoods** of sanitation workers.
- III. It provides:
 - A. Mechanized sanitation equipment.
 - B. Skill development and capacity building.
 - C. Health insurance and social security.
 - D. Occupational safety training.
 - E. Financial inclusion and livelihood support.

- IV. The initiative promotes safe sanitation practices and reduces the risk of fatalities during sewer and septic tank cleaning.
- V. It complements the **Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013**, by supporting rehabilitation and safer working conditions.
- VI. The scheme contributes to the objectives of the **Swachh Bharat Mission (SBM)** by strengthening scientific sanitation management.
- VII. It also encourages Urban Local Bodies (ULBs) to adopt modern sanitation technologies and standard operating procedures.
- VIII. The initiative reinforces the principles of dignity of labour, social justice, and inclusive development.

BACKGROUND / CONTEXT

NAMASTE Scheme

- I. **Full Form: National Action for Mechanised Sanitation Ecosystem.**
- II. **Launched: 2022.**
- III. **Implementing Ministries:**
 - A. **Ministry of Social Justice and Empowerment (MoSJE).**
 - B. **Ministry of Housing and Urban Affairs (MoHUA).**
- IV. Focuses on mechanizing sewer and septic tank cleaning and ensuring the welfare of sanitation workers.

Objectives

- Eliminate hazardous manual cleaning.
- Ensure dignity and safety of sanitation workers.
- Promote mechanized sanitation.
- Improve occupational health and social security.
- Provide skill development and sustainable livelihoods.

RELATED INITIATIVES

Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013

- Prohibits manual scavenging.
- Provides for identification, liberation, and rehabilitation of manual scavengers.
- Regulates sewer and septic tank cleaning with prescribed safety measures.

Swachh Bharat Mission (SBM)

- Launched on **2 October 2014**.
- Promotes sanitation, scientific waste management, and elimination of insanitary practices.

National Commission for Safai Karamcharis (NCSK)

- Reviews welfare measures, occupational safety, and rehabilitation of sanitation workers.

KEY HIGHLIGHTS

- **Scheme:** NAMASTE (National Action for Mechanised Sanitation Ecosystem).
- **Launch Year:** 2022.
- **Implementing Ministries:** Ministry of Social Justice and Empowerment & Ministry of Housing and Urban Affairs.
- **Primary Objective:** Mechanize sanitation work and ensure dignity, safety, and social security for sanitation workers.
- **Social Significance:** Promotes dignity of labour, social justice, and inclusion.
- **Health Significance:** Reduces occupational hazards and sewer-related fatalities.
- **Governance Significance:** Strengthens urban sanitation systems and implementation of labour welfare laws.
- **Challenges:** Limited mechanization in some areas, inadequate equipment, skill gaps, and social stigma.

- **Way Forward:** Expand mechanized sanitation, ensure universal availability of PPE, strengthen rehabilitation and insurance coverage, improve training, and strictly enforce anti-manual scavenging laws.

PRELIMS BOOSTER BOX

- **NAMASTE: National Action for Mechanised Sanitation Ecosystem**, launched in **2022**.
- **Implementing Ministries:** Ministry of Social Justice and Empowerment (MoSJE) and Ministry of Housing and Urban Affairs (MoHUA).
- **Objective:** Promote mechanized sewer and septic tank cleaning while ensuring the dignity, safety, and welfare of sanitation workers.
- **Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013:** Prohibits manual scavenging and provides for rehabilitation of identified manual scavengers.
- **National Commission for Safai Karamcharis (NCSK):** Non-statutory body under the **Ministry of Social Justice and Empowerment** that monitors the welfare of sanitation workers.
- **Swachh Bharat Mission (SBM):** Launched on **2 October 2014** to improve sanitation and eliminate insanitary practices.
- **Personal Protective Equipment (PPE):** Includes helmets, gloves, boots, masks, protective clothing, and safety harnesses used to reduce occupational risks.
- **Article 21:** Guarantees the **Right to Life**, interpreted to include the **right to live with dignity**.
- **Article 46:** Directs the State to protect weaker sections from social injustice and exploitation.
- **SDG 6:** Ensure availability and sustainable management of water and sanitation for all.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **NAMASTE Scheme** is jointly implemented by the **Ministry of Social Justice and**



Empowerment and the **Ministry of Housing and Urban Affairs**.

2. The **Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013** prohibits manual scavenging and provides for rehabilitation of identified manual scavengers.
3. **Article 21** of the Constitution has been interpreted to include the **right to live with dignity**.

Which of the statements given above is/are correct?

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

Answer: (d)

1. WHITE GOLD: INDIA'S COTTON STORY



- I. Cotton, popularly known as "**White Gold**," is one of India's most important commercial crops, supporting millions of farmers and workers.
- II. India has the **largest area under cotton cultivation** globally and is among the **largest producers and exporters** of cotton.
- III. The cotton sector contributes significantly to:
 - A. Agricultural income.
 - B. Employment generation.
 - C. Textile and apparel manufacturing.
 - D. Export earnings.
- IV. Government initiatives such as **Kasturi Cotton Bharat**, **PM MITRA Parks**, and **Bharat Tex** aim to improve quality, branding, value addition, and global competitiveness.
- V. Efforts are being made to promote high-yielding varieties, mechanization, sustainable farming, and modern ginning and processing facilities.
- VI. Cotton remains central to India's vision of becoming a global textile manufacturing hub under **Make in India** and **Atmanirbhar Bharat**.

BACKGROUND / CONTEXT

Cotton in India

- I. Cotton is a **kharif cash crop** cultivated in tropical and subtropical regions.

- II. India accounts for the **largest area under cotton cultivation** in the world.
- III. The sector supports:
 - A. Around **6 million cotton farmers**.
 - B. Approximately **40–50 million people** engaged in textiles, ginning, spinning, weaving, and garment manufacturing.

Major Cotton-Producing States

- Gujarat.
- Maharashtra.
- Telangana.
- Rajasthan.
- Punjab.
- Haryana.
- Madhya Pradesh.
- Karnataka.
- Andhra Pradesh.

Climatic Requirements

- **Temperature:** 21°C–30°C.
- **Rainfall:** 50–100 cm.
- **Soil:** Best suited to **black (regur) soil**, though also cultivated in alluvial and red soils with irrigation.

GOVERNMENT INITIATIVES

Cotton Corporation of India (CCI)

- **Established:** 1970.
- **Ministry:** Ministry of Textiles.
- Procures cotton under the **Minimum Support Price (MSP)** mechanism to protect farmers from distress sales.

Kasturi Cotton Bharat

- I. National branding initiative to promote **premium Indian cotton** with:
 - A. Quality assurance.
 - B. Traceability.
 - C. Sustainability.
- II. Enhances the global reputation of Indian cotton.

PM MITRA Parks

- **PM Mega Integrated Textile Region and Apparel (PM MITRA) Parks** aim to create integrated textile manufacturing ecosystems with world-class infrastructure.

Bharat Tex

- India's flagship global textile event showcasing the country's complete textile value chain, innovation, sustainability, and export potential.

KEY HIGHLIGHTS

- **Crop:** Cotton ("White Gold").
- **Season:** Kharif.
- **Economic Significance:** Major contributor to agriculture, industry, exports, and employment.
- **Industrial Significance:** Backbone of India's textile and apparel sector.
- **Export Significance:** Strengthens India's position in global textile trade.
- **Challenges:** Pest attacks (especially pink bollworm), climate change, water stress, fluctuating international prices, and productivity gaps.
- **Way Forward:** Promote climate-resilient cotton varieties, strengthen extension services, improve irrigation efficiency, expand mechanization, enhance branding through Kasturi Cotton Bharat, and increase value addition in textiles.

PRELIMS BOOSTER BOX

- **Cotton:** Popularly known as "**White Gold.**"
- **Scientific Name:** *Gossypium* spp.
- **Crop Season:** Kharif.
- **Best Soil:** Black (Regur) soil.
- **Ideal Temperature:** 21°C–30°C.
- **Rainfall Requirement:** 50–100 cm.
- **Cotton Corporation of India (CCI):** Established in 1970 under the **Ministry of Textiles** for MSP procurement.

- **Kasturi Cotton Bharat:** Branding initiative for premium Indian cotton with traceability and sustainability.
- **PM MITRA Parks:** Integrated textile manufacturing parks to strengthen India's textile ecosystem.
- **Bharat Tex:** India's flagship international textile exhibition promoting the entire textile value chain.
- **Major Cotton-Producing States:** Gujarat, Maharashtra, Telangana, Rajasthan, Punjab, Haryana, Madhya Pradesh, Karnataka, and Andhra Pradesh.
- **Major Pest: Pink Bollworm (*Pectinophora gossypiella*)**—one of the most destructive pests affecting cotton production.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

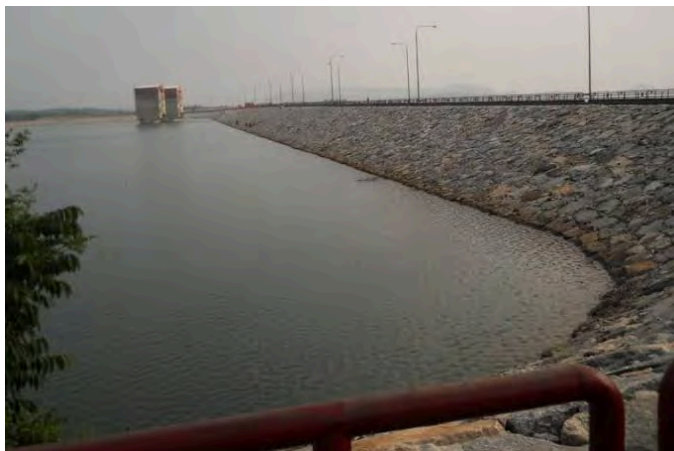
1. Cotton is a **kharif cash crop** best suited to **black (regur) soil**.
2. The **Cotton Corporation of India (CCI)** procures cotton under the **Minimum Support Price (MSP)** mechanism.
3. **Kasturi Cotton Bharat** is an initiative to promote premium Indian cotton with quality assurance, traceability, and sustainability.

Which of the statements given above is/are correct?

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

Answer: (d)

2. STATUS OF PUMPED STORAGE PROJECTS (PSPs) IN INDIA



- Pumped Storage Projects (PSPs) are hydroelectric energy storage systems that store surplus electricity by pumping water from a lower reservoir to an upper reservoir during periods of low demand.
- During peak electricity demand, the stored water is released to generate electricity.
- PSPs help balance intermittent renewable energy sources such as **solar and wind power**.
- They improve **grid stability, frequency regulation, and peak load management**.
- The Government is facilitating the development of new PSPs through policy support, faster clearances, and private sector participation.
- PSPs are expected to play a crucial role in achieving India's renewable energy and **Net Zero** commitments.
- They complement battery energy storage systems (BESS) by providing long-duration energy storage.
- Several PSPs are under construction, while many more are in different stages of survey and planning across States.

BACKGROUND / CONTEXT

What is a Pumped Storage Project (PSP)?

A Pumped Storage Project is a type of **hydroelectric energy storage system** consisting of:

- **Upper Reservoir**
- **Lower Reservoir**
- **Pump-Turbine**
- **Generator/Motor**

Working Principle

1. During periods of **low electricity demand**, excess electricity is used to pump water from the lower reservoir to the upper reservoir.
2. During **peak demand**, water flows back through turbines to generate electricity.

This allows energy to be stored and released when required.

IMPORTANCE OF PSPs

Energy Security

- Provides reliable long-duration electricity storage.

Renewable Energy Integration

- Supports higher penetration of solar and wind energy.

Grid Stability

- I. Offers:
 - A. Frequency regulation.
 - B. Voltage support.
 - C. Peak load management.
 - D. Black start capability.

Environmental Benefits

- Reduces dependence on fossil fuel-based peaking power plants.
- Helps lower greenhouse gas emissions.

KEY HIGHLIGHTS

- **Technology:** Pumped Storage Hydropower.
- **Sector:** Renewable Energy Storage.
- **Lead Ministry:** Ministry of Power.
- **Primary Objective:** Store surplus electricity and supply power during peak demand.
- **Strategic Significance:** Enhances energy security and supports renewable energy expansion.



- **Economic Significance:** Improves grid efficiency and reduces reliance on expensive peak-time thermal generation.
- **Challenges:** High initial investment, land acquisition, environmental clearances, and long gestation periods.
- **Way Forward:** Fast-track approvals, encourage private investment, modernize existing hydro plants, integrate PSPs with renewable energy parks, and strengthen interstate transmission infrastructure.

PRELIMS BOOSTER BOX

- **Pumped Storage Project (PSP):** A hydroelectric energy storage system that stores electricity by pumping water to an upper reservoir and generates power by releasing it back through turbines.
- **Lead Ministry: Ministry of Power.**
- **Type of Storage: Long-duration energy storage.**
- **Round-Trip Efficiency:** Typically **70–80%**, depending on plant design and operating conditions.
- **Black Start Capability:** Ability of a power plant to restart the electricity grid without relying on external power.
- **Battery Energy Storage System (BESS):** Electrochemical energy storage technology; complements PSPs, especially for shorter-duration storage.
- **National Electricity Plan (NEP):** Prepared by the **Central Electricity Authority (CEA)** to guide capacity addition and transmission planning.
- **Central Electricity Authority (CEA):** Statutory body under the **Ministry of Power** responsible for planning and coordination of India's power sector.
- **Renewable Energy Target:** India aims to achieve **500 GW of non-fossil fuel-based installed electricity capacity by 2030.**

- **Net Zero Target:** India has committed to achieving **net-zero greenhouse gas emissions by 2070.**

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. A **Pumped Storage Project (PSP)** stores surplus electricity by pumping water from a lower reservoir to an upper reservoir.
2. PSPs help integrate renewable energy sources such as solar and wind by providing grid balancing and peak load management.
3. The **Central Electricity Authority (CEA)** is a statutory body under the **Ministry of Power.**

Which of the statements given above is/are correct?

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

Answer: (d)

3. MITIGATING THE URBAN HEAT ISLAND (UHI) EFFECT IN INDIAN CITIES



- I. The **Urban Heat Island (UHI) Effect** refers to the phenomenon where urban areas experience significantly higher temperatures than surrounding rural areas due to human activities and built-up infrastructure.
- II. Major causes include:



- A. Expansion of concrete and asphalt surfaces.
 - B. Loss of green cover.
 - C. High building density.
 - D. Vehicular and industrial emissions.
 - E. Waste heat from air conditioners and industries.
- III. UHI increases energy demand, worsens air pollution, and poses serious public health risks, especially during heatwaves.
- IV. Mitigation measures include:
- A. Increasing urban forests and green spaces.
 - B. Promoting **cool roofs** and reflective building materials.
 - C. Developing blue-green infrastructure (lakes, wetlands, parks).
 - D. Improving urban ventilation.
 - E. Expanding permeable surfaces and rainwater harvesting.
- V. These measures enhance climate resilience and improve the livability of cities.
- VI. UHI mitigation supports India's commitments under the **National Action Plan on Climate Change (NAPCC)** and **Sustainable Development Goal (SDG) 11**.

BACKGROUND / CONTEXT

Urban Heat Island (UHI) Effect

- Urban areas absorb and retain more heat than surrounding rural areas due to the predominance of buildings, roads, and other impervious surfaces.
- Temperatures in cities can be several degrees Celsius higher, especially during the night.

Major Causes

- Rapid urbanization.
- Reduction in vegetation and tree cover.
- Dark-colored construction materials with low reflectivity.

- Heat generated by vehicles, industries, and air-conditioning systems.
- Limited airflow due to dense urban construction.

Impacts

- Increased heat stress and heat-related illnesses.
- Higher electricity demand for cooling.
- Poor air quality due to enhanced ozone formation.
- Reduced worker productivity.
- Stress on water resources and urban ecosystems.

GOVERNMENT INITIATIVES

National Action Plan on Climate Change (NAPCC)

- Launched in **2008**.
- Includes the **National Mission for Sustainable Habitat**, which promotes climate-resilient urban planning.

National Mission for Sustainable Habitat (NMSH)

- I. Focuses on:
- A. Energy-efficient buildings.
 - B. Sustainable urban transport.
 - C. Urban waste management.
 - D. Climate-resilient urban development.

Smart Cities Mission

- Launched in **2015**.
- Encourages green infrastructure, smart mobility, energy efficiency, and sustainable urban planning.

AMRUT

- **Atal Mission for Rejuvenation and Urban Transformation**.
- Supports development of urban green spaces, water supply, drainage, and urban resilience.

KEY HIGHLIGHTS

- **Concept:** Urban Heat Island (UHI) Effect.
- **Primary Cause:** Rapid urbanization and replacement of natural surfaces with heat-absorbing built-up areas.
- **Environmental Significance:** Affects urban climate, biodiversity, and air quality.
- **Health Significance:** Increases heat-related illnesses, especially among vulnerable populations.
- **Economic Significance:** Raises cooling costs and reduces labour productivity.
- **Mitigation Measures:** Urban greening, cool roofs, reflective materials, permeable pavements, blue-green infrastructure, and climate-sensitive urban planning.
- **Challenges:** Limited urban green spaces, unplanned development, funding constraints, and weak enforcement of building regulations.
- **Way Forward:** Integrate UHI mitigation into city master plans, expand urban forests, promote heat-resilient building codes, strengthen Heat Action Plans, and increase community participation.

PRELIMS BOOSTER BOX

- **Urban Heat Island (UHI):** Phenomenon where urban areas are warmer than surrounding rural areas due to built-up surfaces and human activities.
- **Cool Roofs:** Roofs made with reflective materials or coatings that reduce heat absorption and indoor temperatures.
- **Blue-Green Infrastructure:** Integration of water bodies (blue) and vegetation (green) to improve urban climate resilience.
- **National Action Plan on Climate Change (NAPCC):** Launched in 2008 with eight National Missions to address climate change.
- **National Mission for Sustainable Habitat (NMSH):** One of the eight NAPCC missions; focuses on sustainable urban development.

- **Smart Cities Mission:** Launched in 2015 to improve urban infrastructure, sustainability, and quality of life.
- **AMRUT: Atal Mission for Rejuvenation and Urban Transformation,** launched in 2015 to improve basic urban infrastructure and promote sustainable urban development.
- **Heat Action Plan (HAP):** A city or state-level strategy to reduce the impact of heatwaves through early warning systems, public awareness, and emergency response.
- **Nature-based Solutions (Nbs):** Actions that protect, restore, or sustainably manage ecosystems to address societal challenges such as climate change and disaster risk.
- **SDG 11: Sustainable Cities and Communities**—aims to make cities inclusive, safe, resilient, and sustainable.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **Urban Heat Island (UHI) Effect** refers to urban areas experiencing higher temperatures than nearby rural areas due to built-up infrastructure and human activities.
2. The **National Mission for Sustainable Habitat** is one of the **eight missions** under the **National Action Plan on Climate Change (NAPCC)**.
3. **Cool roofs** reduce heat absorption by using highly reflective materials or coatings.

Which of the statements given above is/are correct?

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

Answer: (d)

4. GOVERNMENT AND RBI STRENGTHEN FINTECH ECOSYSTEM WITH ENHANCED REGULATORY FRAMEWORKS & CONSUMER PROTECTION ACTIONS



- I. India has emerged as one of the world's fastest-growing fintech ecosystems, driven by **Digital Public Infrastructure (DPI)** such as **Aadhaar, UPI, DigiLocker, and Account Aggregator**.
- II. The Government and RBI are strengthening regulations to ensure:
 - A. Secure digital payments.
 - B. Responsible digital lending.
 - C. Consumer protection.
 - D. Cybersecurity.
 - E. Data privacy.
 - F. Financial stability.
- III. RBI has introduced guidelines on:
 - A. Digital lending.
 - B. Payment aggregators.
 - C. Payment gateways.
 - D. Prepaid Payment Instruments (PPIs).
 - E. Account Aggregator Framework.

- IV. Consumer awareness campaigns, grievance redressal mechanisms, and fraud prevention measures have been strengthened.
- V. Regulatory innovation through the **RBI Regulatory Sandbox** encourages responsible experimentation with emerging financial technologies.
- VI. These initiatives support **Digital India, financial inclusion**, and India's transition towards a trusted digital economy.

BACKGROUND / CONTEXT

Fintech

- I. **Financial Technology (Fintech)** refers to the use of technology to deliver financial services efficiently and innovatively.
- II. Major segments include:
 - A. Digital payments.
 - B. Digital lending.
 - C. InsurTech.
 - D. WealthTech.
 - E. RegTech.
 - F. Blockchain-based financial services.

India's Digital Public Infrastructure (DPI)

Key pillars include:

- **Aadhaar.**
- **Unified Payments Interface (UPI).**
- **DigiLocker.**
- **Account Aggregator (AA).**
- **e-KYC.**

These platforms have significantly expanded access to digital financial services.

KEY REGULATORY INITIATIVES

Digital Lending Guidelines (RBI)

- Promote transparency in lending.
- Ensure direct loan disbursement and repayment between borrower and regulated entity.
- Strengthen consumer protection and grievance redressal.

Account Aggregator (AA) Framework

- RBI-regulated consent-based data-sharing system enabling secure sharing of financial information with customer consent.

RBI Regulatory Sandbox

- Controlled environment for testing innovative fintech products under regulatory supervision.

Payment Aggregator Framework

- Regulates entities facilitating online merchant payments and strengthens security standards.

KEY HIGHLIGHTS

- **Lead Institutions:** Government of India and Reserve Bank of India (RBI).
- **Focus:** Safe, innovative, and inclusive fintech ecosystem.
- **Economic Significance:** Expands digital financial services and supports economic growth.
- **Governance Significance:** Strengthens financial regulation, consumer protection, and market integrity.
- **Technological Significance:** Promotes innovation using Digital Public Infrastructure (DPI).
- **Challenges:** Cybersecurity threats, digital fraud, data privacy concerns, regulatory arbitrage, and digital literacy gaps.
- **Way Forward:** Strengthen cyber resilience, improve financial literacy, enhance regulatory coordination, encourage responsible AI in finance, expand digital financial inclusion, and promote secure cross-border digital payments.

PRELIMS BOOSTER BOX

- **Fintech:** Application of technology to deliver innovative financial services such as payments, lending, insurance, and investments.
- **Reserve Bank of India (RBI):** India's central bank established under the **Reserve Bank of India Act, 1934**; commenced operations in **1935**.

- **Unified Payments Interface (UPI):** Real-time payment system developed by the **National Payments Corporation of India (NPCI)**.
- **NPCI:** Umbrella organization for retail payment systems in India, established in **2008** under the guidance of the RBI and the **Indian Banks' Association (IBA)**.
- **Account Aggregator (AA):** RBI-regulated consent-based framework for secure sharing of financial information.
- **Digital Lending Guidelines:** RBI guidelines ensuring transparent and responsible digital lending practices.
- **Payment Aggregator (PA):** Entity that enables merchants to accept online payments by facilitating transactions between customers and banks.
- **Regulatory Sandbox:** Framework allowing fintech firms to test innovative financial products in a controlled regulatory environment.
- **Digital Public Infrastructure (DPI):** Foundational digital platforms such as Aadhaar, UPI, DigiLocker, and Account Aggregator that enable secure and interoperable digital services.
- **Financial Inclusion:** Ensuring affordable access to banking, credit, insurance, and payment services for all sections of society.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **Unified Payments Interface (UPI)** was developed by the **National Payments Corporation of India (NPCI)**.
2. The **Account Aggregator (AA)** framework enables consent-based sharing of financial information.
3. The **RBI Regulatory Sandbox** provides a controlled environment for testing innovative fintech products under regulatory supervision.

Which of the statements given above is/are correct?

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

Answer: (d)

5. TEXT OF THE OBITUARY

REFERENCES MADE BY THE HON'BLE CHAIRMAN IN THE HOUSE TODAY



- I. The Chairman expressed deep sorrow over the demise of eminent personalities and conveyed condolences to their bereaved families.
- II. Members of the House paid homage by observing **silence** as a mark of respect.
- III. Obituary references are a long-standing parliamentary practice followed at the commencement of proceedings whenever the House records the passing away of:
 - A. Sitting Members.
 - B. Former Members.
 - C. National leaders.
 - D. Eminent personalities.
 - E. Individuals who have rendered distinguished public service.
- IV. These references symbolize the dignity of Parliament and its recognition of contributions made to the nation.
- V. After the obituary references, the House may adjourn for the day or continue its scheduled business depending on the decision of the Chair.

BACKGROUND / CONTEXT

Obituary Reference

- An obituary reference is a formal statement made by the **Presiding Officer** of the House expressing grief over the death of a distinguished person.
- It is entered into the official parliamentary records.

Purpose

- Pay tribute to the deceased.
- Recognize contributions to the nation and society.
- Express sympathy to the bereaved family.
- Uphold parliamentary traditions and decorum.

Parliamentary Procedure

- The Presiding Officer reads the obituary reference.
- Members stand in silence, usually for a minute.
- Depending on the significance of the occasion, the House may be adjourned as a mark of respect.

KEY HIGHLIGHTS

- **Event:** Obituary References in the House.
- **Presiding Officer:** Chairman (Rajya Sabha) / Speaker (Lok Sabha), as applicable.
- **Purpose:** To pay tribute and express condolences on behalf of Parliament.
- **Parliamentary Significance:** Reflects parliamentary traditions, dignity, and respect for public service.
- **Constitutional Significance:** Though not specifically mentioned in the Constitution, obituary references are governed by established parliamentary conventions and rules of procedure.
- **Challenges:** Maintaining neutrality, ensuring due recognition, and balancing parliamentary business with ceremonial practices.
- **Way Forward:** Continue preserving parliamentary traditions while documenting



the contributions of distinguished personalities for future generations.

PRELIMS BOOSTER BOX

- **Rajya Sabha Chairman:** The **Vice-President of India** is the **ex officio Chairman of the Rajya Sabha** under **Article 64** of the Constitution.
- **Lok Sabha Speaker:** Presides over the proceedings of the Lok Sabha and maintains order and decorum.
- **Article 64:** Provides that the **Vice-President shall be the ex officio Chairman of the Council of States (Rajya Sabha)**.
- **Article 89:** Provides for the **Chairman and Deputy Chairman of the Rajya Sabha**.
- **Parliamentary Conventions:** Practices and customs followed by Parliament that are not necessarily codified but are essential for its functioning.
- **Question Hour:** First hour of a parliamentary sitting during which Members ask questions to Ministers.
- **Zero Hour:** Informal period immediately after Question Hour when Members raise matters of urgent public importance.
- **Adjournment:** Temporary suspension of a sitting of the House by the Presiding Officer.
- **Prorogation:** Termination of a session of Parliament by the President.
- **Dissolution:** Applies only to the **Lok Sabha** and ends its tenure; the **Rajya Sabha** is a permanent House and is not dissolved.

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

Answer: (a)

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. Under **Article 64** of the Constitution, the **Vice-President of India** is the **ex officio Chairman of the Rajya Sabha**.
2. The **Rajya Sabha** is a permanent House and is **not subject to dissolution**.
3. **Obituary references** are expressly provided for in the Constitution of India.

Which of the statements given above is/are correct?

1. JOURNEYS OF GRIT, PATHWAYS OF GROWTH



- I. The theme celebrates individuals who have overcome socio-economic challenges through determination and government support.
- II. It highlights success stories from:
 - A. Self-Help Groups (SHGs).
 - B. Rural entrepreneurship.
 - C. Skill development programmes.
 - D. Financial inclusion initiatives.
 - E. Micro and small enterprises.
- III. Government schemes have enabled beneficiaries through:
 - A. Skill training.
 - B. Access to institutional credit.
 - C. Digital financial services.
 - D. Market linkages.
 - E. Entrepreneurship development.

- IV. These initiatives have enhanced employment opportunities, women's empowerment, and rural incomes.
- V. The stories demonstrate the role of community participation and capacity building in achieving inclusive growth.
- VI. They align with the vision of **Viksit Bharat, Atmanirbhar Bharat, and Sabka Saath, Sabka Vikas, Sabka Vishwas, Sabka Prayas.**

BACKGROUND / CONTEXT

Inclusive Development

Inclusive development focuses on ensuring that economic growth benefits all sections of society, particularly:

- Women.
- Rural communities.
- Scheduled Castes (SCs).
- Scheduled Tribes (STs).
- Youth.
- Marginalized groups.

Role of Entrepreneurship

Entrepreneurship contributes to:

- Employment generation.
- Income enhancement.
- Innovation.
- Local economic development.
- Women's empowerment.

RELATED GOVERNMENT INITIATIVES

DAY–National Rural Livelihoods Mission (DAY-NRLM)

- **Launched: 2011.**
- **Ministry:** Ministry of Rural Development.
- Promotes women-led **Self-Help Groups (SHGs)**, financial inclusion, and sustainable livelihoods.

Pradhan Mantri Mudra Yojana (PMMY)

- I. **Launched: 2015.**
- II. Provides collateral-free loans to micro and small enterprises under:



- A. Shishu.
- B. Kishor.
- C. Tarun.

Skill India Mission

- **Launched: 15 July 2015.**
- Enhances employability through industry-oriented skill development.

PM Vishwakarma

- Supports artisans and craftspeople through skill upgradation, toolkit incentives, concessional credit, and market access.

KEY HIGHLIGHTS

- **Theme:** Journeys of Grit, Pathways of Growth.
- **Focus:** Empowerment through skills, entrepreneurship, and livelihoods.
- **Social Significance:** Promotes women's empowerment, financial inclusion, and community development.
- **Economic Significance:** Encourages self-employment, MSME growth, and rural economic transformation.
- **Governance Significance:** Demonstrates the impact of welfare schemes on inclusive development.
- **Challenges:** Limited market access, digital divide, skill gaps, access to finance, and infrastructure constraints.
- **Way Forward:** Strengthen entrepreneurship ecosystems, expand digital and financial literacy, improve market linkages, promote value addition, and enhance convergence among livelihood schemes.

PRELIMS BOOSTER BOX

- **DAY-NRLM: Deendayal Antyodaya Yojana–National Rural Livelihoods Mission,** implemented by the **Ministry of Rural Development** to promote women-led SHGs and sustainable livelihoods.

- **Self-Help Group (SHG):** Voluntary group, usually of women, engaged in savings, credit, and livelihood activities.
- **Pradhan Mantri Mudra Yojana (PMMY):** Provides collateral-free loans to non-corporate, non-farm micro enterprises.
- **MUDRA Loan Categories:** **Shishu** (up to ₹50,000), **Kishor** (₹50,000–₹5 lakh), **Tarun** (₹5–10 lakh).
- **Skill India Mission:** National programme launched in **2015** to improve employability through vocational training.
- **PM Vishwakarma:** Scheme launched in **2023** for traditional artisans and craftspeople.
- **Financial Inclusion:** Ensuring access to affordable banking, credit, insurance, pensions, and digital payment services.
- **MSME:** Micro, Small and Medium Enterprises—key drivers of employment and economic growth.
- **Atmanirbhar Bharat:** Vision to build a self-reliant and globally competitive India.
- **SDG 8:** Promote sustained, inclusive and sustainable economic growth, productive employment, and decent work for all.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. **DAY-NRLM** promotes women-led Self-Help Groups (SHGs) and sustainable rural livelihoods.
2. **Pradhan Mantri Mudra Yojana (PMMY)** provides collateral-free loans to micro and small enterprises.
3. **PM Vishwakarma** aims to support traditional artisans through skill development, credit support, and market linkages.

Which of the statements given above is/are correct?

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

Answer: (d)

2. FIVE NEW SPECIES OF ALLOGRAPHA DISCOVERED IN THE WESTERN GHATS



- Researchers identified **five previously unknown species** belonging to the genus ***Allographa***.
- The discovery was made in the **Western Ghats**, a UNESCO World Heritage Site and one of the world's **36 Biodiversity Hotspots**.
- *Allographa* belongs to a group of **lichen-forming fungi**, organisms formed through a **symbiotic association between a fungus and a photosynthetic partner (algae or cyanobacteria)**.

- Lichens are highly sensitive to environmental changes and are widely used as **bioindicators of air quality and ecosystem health**.
- The discovery enriches India's documented biodiversity and strengthens the importance of conserving forest ecosystems.
- It also contributes to global knowledge on fungal diversity and taxonomy.

BACKGROUND / CONTEXT

What are Lichens?

- Lichens are composite organisms formed by a **mutually beneficial (symbiotic) relationship** between:
 - A **fungus (mycobiont)**, and
 - An **alga or cyanobacterium (photobiont)**.
- The fungus provides protection, water, and minerals, while the algal partner produces food through photosynthesis.

Importance of Lichens

- Indicators of **air pollution** and environmental quality.
- Pioneer species in ecological succession.
- Aid in **soil formation** by weathering rocks.
- Provide habitat and food for several organisms.
- Produce compounds with medicinal and industrial applications.

ABOUT THE WESTERN GHATS

- Stretch approximately **1,600 km** along India's western coast.
- Pass through **Gujarat, Maharashtra, Goa, Karnataka, Kerala, and Tamil Nadu**.
- Recognized as:
 - A **UNESCO World Heritage Site**.
 - One of the **36 Global Biodiversity Hotspots**.
- Home to:
 - Thousands of endemic species.
 - Tropical evergreen forests.

- C. Numerous rivers originating from the mountain range.

KEY HIGHLIGHTS

- **Discovery:** Five new species of *Allographa*.
- **Location:** Western Ghats.
- **Category:** Lichen-forming fungi.
- **Scientific Significance:** Enhances understanding of fungal diversity and taxonomy.
- **Ecological Significance:** Highlights the role of lichens as bioindicators of ecosystem health.
- **Conservation Significance:** Reinforces the importance of protecting biodiversity-rich ecosystems.
- **Challenges:** Habitat degradation, climate change, air pollution, deforestation, and limited taxonomic expertise.
- **Way Forward:** Strengthen biodiversity surveys, conserve forest habitats, promote fungal research, improve taxonomic capacity, and integrate lichens into long-term ecological monitoring.

PRELIMS BOOSTER BOX

- Genus: *Allographa*** – a genus of lichen-forming fungi.
- Lichen:** Symbiotic association between a fungus and an alga or cyanobacterium.
- Bioindicator:** An organism used to assess environmental quality; lichens are especially sensitive to air pollution, particularly sulphur dioxide.
- Western Ghats:**
 - Approximate Length: **1,600 km**.
 - UNESCO World Heritage Site.
 - One of the **36 Global Biodiversity Hotspots**.
- Biodiversity Hotspot:** Region with exceptionally high endemic species and significant habitat loss; concept developed by **Norman Myers**.

- Endemic Species:** Species naturally found only in a particular geographic area.
- Taxonomy:** Branch of biology dealing with identification, naming, and classification of organisms.
- Symbiosis:** Close association between different organisms; in lichens, it is generally **mutualistic**.
- Western Ghats Rivers:** Godavari, Krishna, Kaveri, Tungabhadra, Periyar, and many others originate from the Western Ghats.
- Convention on Biological Diversity (CBD):** International treaty adopted in **1992** for biodiversity conservation, sustainable use, and fair sharing of benefits.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

- Lichens** are formed through a symbiotic association between a **fungus** and an **alga or cyanobacterium**.
- Lichens are widely used as **bioindicators of air quality**.
- The **Western Ghats** are recognized as both a **UNESCO World Heritage Site** and one of the **36 Global Biodiversity Hotspots**.

Which of the statements given above is/are correct?

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

Answer: (d)

3. FUNDS FOR DAY-NRLM (DEENDAYAL ANTYODAYA YOJANA – NATIONAL RURAL LIVELIHOODS MISSION)



- I. **DAY-NRLM** is the flagship rural livelihoods programme of the **Ministry of Rural Development (MoRD)**.
- II. The mission aims to organize rural poor households, especially women, into **Self-Help Groups (SHGs)** and their federations.
- III. Funds are utilized for:
 - A. Formation and strengthening of SHGs.
 - B. Revolving Fund (RF) and Community Investment Fund (CIF).
 - C. Bank credit linkage.
 - D. Livelihood diversification.
 - E. Skill development and entrepreneurship.
 - F. Capacity building of community institutions.
- IV. The programme supports the vision of **Lakhpati Didi**, enabling women SHG members to earn sustainable annual incomes.
- V. It also promotes digital financial inclusion, social empowerment, and community-led development.

BACKGROUND / CONTEXT

DAY-NRLM

- **Full Name:** Deendayal Antyodaya Yojana – National Rural Livelihoods Mission.
- **Launched:** 2011 (as NRLM); renamed **DAY-NRLM** in 2015.
- **Ministry:** Ministry of Rural Development.
- **Target Group:** Rural poor households, with a primary focus on women.

Objectives

- Reduce rural poverty through sustainable livelihoods.
- Promote women-led Self-Help Groups.
- Enhance access to institutional finance.
- Encourage entrepreneurship and skill development.
- Strengthen community institutions.

FUNDING PATTERN

- **General States: 60:40** (Centre : State).
- **North-Eastern & Himalayan States: 90:10.**
- **Union Territories (without Legislature): 100% Central Assistance.**

For 2026–27:

- **DAY-NRLM Programme Component: ₹17,280 crore.**
- **North-East Region Component: ₹1,920 crore.**

KEY COMPONENTS

Self-Help Groups (SHGs)

- Mobilization of rural women into savings and credit groups.

Financial Inclusion

- Bank linkage.
- Revolving Fund (RF).
- Community Investment Fund (CIF).

Livelihood Promotion

- Agriculture.
- Livestock.
- Food processing.



- Rural enterprises.
- Producer Groups and Farmer Producer Organizations (FPOs).

Skill Development

- Entrepreneurship training.
- Market linkage.
- Digital literacy.

KEY HIGHLIGHTS

- **Scheme:** DAY–NRLM.
- **Ministry:** Ministry of Rural Development.
- **Primary Objective:** Poverty reduction through women-led community institutions and sustainable livelihoods.
- **2026–27 Allocation:** ₹17,280 crore (Programme Component) + ₹1,920 crore (North–East Region).
- **Social Significance:** Women's empowerment, financial inclusion, and social mobilization.
- **Economic Significance:** Rural entrepreneurship, income enhancement, and employment generation.
- **Challenges:** Regional disparities, limited market access, digital divide, and uneven institutional capacity.
- **Way Forward:** Increase credit access, strengthen SHG federations, promote value addition, integrate digital platforms, and expand convergence with agriculture, MSMEs, and skill development programmes.

PRELIMS BOOSTER BOX

- DAY–NRLM:** Flagship rural livelihoods mission under the **Ministry of Rural Development**.
- Launch:** 2011 (renamed **Deendayal Antyodaya Yojana** in 2015).
- Target Beneficiaries:** Rural poor households, especially **women**.
- Funding Pattern:**
 - General States – **60:40**
 - North–Eastern & Himalayan States – **90:10**

C. Union Territories (without Legislature) –

100% Central Assistance

- Self-Help Group (SHG):** Community-based savings and credit group, generally consisting of **10–20 women**.
- Revolving Fund (RF):** Financial assistance to SHGs for strengthening internal lending.
- Community Investment Fund (CIF):** Capital support to SHGs through higher-level federations for livelihood activities.
- Lakshpati Didi Initiative:** Aims to enable women SHG members to earn **at least ₹1 lakh annual household income**.
- Financial Inclusion:** Ensuring access to banking, credit, insurance, pensions, and digital financial services.
- SDG 1 & SDG 5:** DAY–NRLM contributes to **No Poverty** and **Gender Equality**.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

- DAY–NRLM** is implemented by the **Ministry of Rural Development**.
- The scheme primarily focuses on organizing rural poor women into **Self-Help Groups (SHGs)**.
- The funding pattern for **North–Eastern States** under DAY–NRLM is **90:10** between the Centre and the State.

Which of the statements given above is/are correct?

- 1 and 2 only
- 2 and 3 only
- 1 and 3 only
- 1, 2 and 3

Answer: (d)

4. INDIA'S RENEWABLE ENERGY INSTALLED CAPACITY SURGES NEARLY FOURFOLD TO 288.58 GW SINCE 2014



- I. India's renewable energy sector has witnessed unprecedented growth, with installed capacity reaching **288.58 GW**.
- II. The expansion has been driven by rapid growth in:
 - A. Solar Energy.
 - B. Wind Energy.
 - C. Large Hydropower.
 - D. Bioenergy.
 - E. Small Hydro Power.
- III. Government initiatives such as the **National Solar Mission, PM-KUSUM, PLI Scheme for Solar PV Modules, Green Energy Corridors**, and **National Green Hydrogen Mission** have accelerated renewable energy deployment.
- IV. The increase has improved:
 - A. Energy security.
 - B. Reduction in carbon emissions.
 - C. Green employment.
 - D. Investment in clean technologies.
- V. India remains one of the fastest-growing renewable energy markets globally.

BACKGROUND / CONTEXT

Renewable Energy

Renewable energy is generated from naturally replenishing sources such as:

- Solar.
- Wind.
- Hydropower.
- Biomass.
- Ocean energy.

These sources produce significantly lower greenhouse gas emissions compared to fossil fuels.

India's Renewable Energy Targets

- **500 GW of non-fossil fuel-based installed electricity capacity by 2030.**
- **Net Zero emissions by 2070.**
- Reduction in emissions intensity of GDP under India's **Nationally Determined Contributions (NDCs)**.

MAJOR GOVERNMENT INITIATIVES

National Solar Mission (NSM)

- Launched in **2010**.
- Part of the **National Action Plan on Climate Change (NAPCC)**.
- Promotes large-scale solar energy deployment.

PM-KUSUM

- **Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan.**
- Promotes solar pumps and decentralized renewable energy for farmers.

National Green Hydrogen Mission

- Launched in **2023**.
- Aims to make India a global hub for green hydrogen production and exports.

Green Energy Corridor

- Develops transmission infrastructure for integrating renewable energy into the national grid.

PLI Scheme for High-Efficiency Solar PV

Modules

- Encourages domestic manufacturing of solar photovoltaic modules.

KEY HIGHLIGHTS

- **Installed Renewable Energy Capacity: 288.58 GW.**
- **Growth:** Nearly fourfold since 2014.
- **Lead Ministry:** Ministry of New and Renewable Energy (MNRE).
- **Major Sources:** Solar, Wind, Large Hydro, Bioenergy, Small Hydro.
- **Environmental Significance:** Reduces greenhouse gas emissions and supports climate action.
- **Economic Significance:** Generates green jobs, attracts investments, and reduces dependence on imported fossil fuels.
- **Strategic Significance:** Enhances energy security and supports sustainable development.
- **Challenges:** Grid integration, energy storage, land acquisition, transmission infrastructure, and intermittency of renewable sources.
- **Way Forward:** Expand battery and pumped storage systems, strengthen Green Energy Corridors, encourage domestic manufacturing, promote offshore wind, and accelerate smart grid deployment.

PRELIMS BOOSTER BOX

- **Renewable Energy:** Energy derived from naturally replenishing sources such as solar, wind, hydro, biomass, and ocean energy.
- **Ministry of New and Renewable Energy (MNRE):** Nodal ministry for renewable energy development in India.
- **National Solar Mission (NSM):** Launched in 2010 under the **National Action Plan on Climate Change (NAPCC)**.

- **National Action Plan on Climate Change (NAPCC):** Launched in 2008 with **eight National Missions**, including the National Solar Mission.
- **PM-KUSUM:** Scheme promoting solar pumps and decentralized renewable energy for farmers.
- **National Green Hydrogen Mission:** Launched in 2023 to promote green hydrogen production, utilization, and exports.
- **Green Energy Corridor:** Transmission infrastructure project for integrating renewable energy into the power grid.
- **PLI Scheme for High-Efficiency Solar PV Modules:** Incentivizes domestic manufacturing of solar photovoltaic modules.
- **India's Target: 500 GW of non-fossil fuel-based installed electricity capacity by 2030.**
- **Net Zero Target:** India aims to achieve **net-zero greenhouse gas emissions by 2070**.
- **Nationally Determined Contributions (NDCs):** Climate commitments submitted by countries under the **Paris Agreement (2015)**.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **National Solar Mission** is one of the eight missions under the **National Action Plan on Climate Change (NAPCC)**.
2. **PM-KUSUM** promotes solar-powered irrigation pumps and decentralized renewable energy for farmers.
3. India has committed to achieving **500 GW of non-fossil fuel-based installed electricity capacity by 2030**.

Which of the statements given above is/are correct?

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

Answer: (d)

5. NATIONAL CYBER CRIME DATA



- I. Cybercrime incidents have increased with the rapid adoption of digital payments, e-commerce, social media, and online banking.
- II. Common cybercrimes include:
 - A. Online financial fraud.
 - B. Phishing.
 - C. Identity theft.
 - D. UPI and QR code scams.
 - E. Investment fraud.
 - F. Sextortion.
 - G. Ransomware attacks.
 - H. Social media impersonation.
- III. The Government has strengthened the national cybercrime ecosystem through:
 - A. **Indian Cyber Crime Coordination Centre (I4C).**
 - B. **National Cyber Crime Reporting Portal.**
 - C. **Citizen Financial Cyber Fraud Reporting and Management System.**
 - D. **Cyber Crime Helpline – 1930.**
- IV. Coordination among Central agencies, States, banks, telecom service providers, and fintech

companies has improved the response to cyber fraud.

- V. Public awareness campaigns are being conducted to improve cyber hygiene and digital safety.

BACKGROUND / CONTEXT

Cyber Crime

Cybercrime refers to offences committed using computers, digital devices, communication networks, or the internet.

Major categories include:

- Financial fraud.
- Data theft.
- Identity theft.
- Cyber stalking.
- Child exploitation.
- Cyber terrorism.
- Malware and ransomware attacks.
- Online cheating.

MAJOR GOVERNMENT INITIATIVES

Indian Cyber Crime Coordination Centre (I4C)

- I. **Launched: 2018.**
- II. **Ministry:** Ministry of Home Affairs (MHA).
- III. Functions:
 - A. National coordination against cybercrime.
 - B. Capacity building.
 - C. Research and innovation.
 - D. Cybercrime investigation support.

National Cyber Crime Reporting Portal

- I. Official portal for reporting cybercrimes, especially:
 - A. Financial fraud.
 - B. Crimes against women and children.

Cyber Crime Helpline – 1930

- Dedicated national helpline for reporting online financial frauds.



- Enables rapid coordination to freeze fraudulent transactions.

Citizen Financial Cyber Fraud Reporting and Management System

- Facilitates immediate reporting of financial cyber fraud.
- Works with banks, payment systems, and law enforcement agencies to block fraudulent fund transfers.

LEGAL FRAMEWORK

Information Technology Act, 2000

- I. India's primary legislation governing cyber offences and electronic governance.
- II. Covers:
 - A. Hacking.
 - B. Identity theft.
 - C. Data protection-related offences.
 - D. Electronic records.
 - E. Digital signatures.

Bharatiya Nyaya Sanhita (BNS), 2023

- Contains provisions dealing with cheating, forgery, identity-related offences, and technology-enabled crimes alongside the IT Act.

KEY HIGHLIGHTS

- **Lead Ministry:** Ministry of Home Affairs.
- **Nodal Agency:** Indian Cyber Crime Coordination Centre (I4C).
- **Objective:** Prevent, detect, investigate, and prosecute cybercrimes.
- **Social Significance:** Protects citizens from online fraud and digital exploitation.
- **Economic Significance:** Enhances trust in digital payments and the digital economy.
- **Technological Significance:** Strengthens cybersecurity infrastructure and cyber resilience.
- **Challenges:** Rapidly evolving cyber threats, cross-border crimes, low cyber awareness,

cryptocurrency misuse, and shortage of trained cyber investigators.

- **Way Forward:** Enhance cyber literacy, strengthen international cooperation, improve AI-based fraud detection, build cyber forensic capacity, and promote secure digital practices.

PRELIMS BOOSTER BOX

- **Indian Cyber Crime Coordination Centre (I4C):** Established in **2018** under the **Ministry of Home Affairs** as the national nodal agency for combating cybercrime.
- **National Cyber Crime Reporting Portal:** <https://cybercrime.gov.in> – Official portal for reporting cyber offences.
- **Cyber Crime Helpline: 1930** – National helpline for reporting online financial fraud.
- **Information Technology Act, 2000:** India's principal law governing cyber offences, electronic records, and digital signatures.
- **CERT-In (Indian Computer Emergency Response Team):** National nodal agency for responding to cybersecurity incidents under the **Ministry of Electronics and Information Technology (MeitY)**.
- **National Critical Information Infrastructure Protection Centre (NCIIPC):** Protects India's critical information infrastructure; functions under the **National Technical Research Organisation (NTRO)**.
- **Phishing:** Fraudulent attempt to obtain sensitive information by impersonating a trusted entity.
- **Ransomware:** Malware that encrypts a victim's data and demands payment for its release.
- **Cyber Hygiene:** Safe online practices such as using strong passwords, enabling multi-factor authentication, updating software, and avoiding suspicious links.
- **Digital Arrest Scam:** A cyber fraud where fraudsters impersonate law enforcement officials to intimidate victims into transferring money.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **Indian Cyber Crime Coordination Centre (I4C)** functions under the **Ministry of Home Affairs**.
2. The **Cyber Crime Helpline 1930** is meant for reporting online financial fraud.
3. **CERT-In** functions under the **Ministry of Electronics and Information Technology (MeitY)**.

Which of the statements given above is/are correct?

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

Answer: (d)

1. FCRA: FOREIGN CONTRIBUTION (REGULATION) ACT, 2010



- I. The **Foreign Contribution (Regulation) Act (FCRA), 2010** regulates the acceptance and utilization of **foreign contributions and foreign hospitality** by individuals, associations, NGOs, and companies in India.
- II. The Act aims to ensure that foreign funding **does not adversely affect**:
 - A. National security.
 - B. Sovereignty and integrity of India.
 - C. Democratic institutions.
 - D. Public interest.
- III. Organizations receiving foreign contributions must:
 - A. Obtain **FCRA Registration** or **Prior Permission**.
 - B. Maintain a designated FCRA bank account.
 - C. File annual returns with the Government.
- IV. The Act is administered by the **Ministry of Home Affairs (MHA)**.

BACKGROUND / CONTEXT

Evolution

- I. **FCRA, 1976**
 - A. Enacted during the Emergency period to regulate foreign funding.
- II. **FCRA, 2010**

- A. Replaced the 1976 Act to strengthen transparency and accountability.

III. **FCRA (Amendment) Act, 2020**

- A. Introduced stricter compliance measures to enhance transparency and prevent misuse of foreign funds.

KEY PROVISIONS

Registration

- I. NGOs intending to receive foreign contributions must:
 - A. Obtain **FCRA Registration**, or
 - B. Obtain **Prior Permission** for a specific contribution.

Validity

- Registration is valid for **5 years** and must be renewed.

Designated Bank Account

- Every FCRA-registered organization must receive foreign contributions in a designated **State Bank of India (SBI), New Delhi Main Branch** account.

Utilization of Funds

- Foreign contributions must be used **only for the purpose** for which they are received.

Administrative Expenses

- Administrative expenses cannot exceed **20%** of foreign contributions received in a financial year without Government approval.

Transfer of Foreign Contribution

- The 2020 Amendment prohibits the transfer of foreign contributions from one FCRA-registered organization to another.

WHO CANNOT RECEIVE FOREIGN CONTRIBUTION?

The Act prohibits foreign contributions to:

- Election candidates.
- Members of Parliament (MPs).
- Members of State Legislatures (MLAs/MLCs).



- Political parties.
- Judges.
- Government servants.
- Journalists associated with registered newspapers (subject to statutory provisions).
- Organisations of a political nature as notified by the Government.

KEY HIGHLIGHTS

- **Act:** Foreign Contribution (Regulation) Act, 2010.
- **Administering Ministry:** Ministry of Home Affairs (MHA).
- **Objective:** Regulate foreign contributions to safeguard national interest and ensure transparency.
- **Governance Significance:** Enhances accountability of NGOs receiving foreign funds.
- **Security Significance:** Prevents misuse of foreign contributions for activities detrimental to national security and public interest.
- **Challenges:** Balancing national security with civil society participation, compliance burden on NGOs, and timely processing of registrations and renewals.
- **Way Forward:** Improve transparency, simplify compliance through digital platforms, strengthen monitoring, and ensure a balanced regulatory framework that supports genuine developmental activities.

PRELIMS BOOSTER BOX

- **FCRA: Foreign Contribution (Regulation) Act, 2010.**
- **Administering Ministry: Ministry of Home Affairs (MHA).**
- **Earlier Law: Foreign Contribution (Regulation) Act, 1976.**
- **Major Amendment: Foreign Contribution (Regulation) Amendment Act, 2020.**
- **Registration Validity: 5 years, renewable.**

- **Designated FCRA Account:** Mandatory receipt of foreign contributions through the **State Bank of India (SBI), New Delhi Main Branch.**
- **Administrative Expense Limit: 20%** of foreign contribution received in a financial year.
- **Prior Permission:** Required when an organisation is not registered under FCRA but seeks to receive a specific foreign contribution.
- **Foreign Hospitality:** Regulated under FCRA for specified public servants and categories of persons.
- **Constitutional Context:** While **Article 19(1)(c)** guarantees the right to form associations, it is subject to **reasonable restrictions** under **Article 19(4)** in the interests of sovereignty, integrity, and public order.

PadhAI-GENERATED UPSC MCQ

Consider the following statements regarding the **Foreign Contribution (Regulation) Act (FCRA), 2010:**

1. The Act is administered by the **Ministry of Home Affairs.**
2. Registration under FCRA is valid for **five years** and is renewable.
3. The **Foreign Contribution (Regulation) Amendment Act, 2020** prohibits the transfer of foreign contributions from one FCRA-registered organization to another.

Which of the statements given above is/are correct?

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

Answer: (d)

2. INDIAN NAVY COMMISSIONS INS MALVAN – THE SECOND MAHE-CLASS ANTI-SUBMARINE WARFARE SHALLOW WATER CRAFT



- V. INS Malvan will significantly enhance maritime security in India's coastal waters and support anti-submarine operations in shallow seas.

BACKGROUND / CONTEXT

Mahe-Class ASW Shallow Water Craft

- The **Mahe-class** consists of a series of **Anti-Submarine Warfare Shallow Water Craft (ASW-SWC)** being built for the Indian Navy.
- These vessels are intended to replace the ageing **Abhay-class ASW Corvettes**.
- Built under the Government's **Make in India** initiative.

Role of ASW Shallow Water Craft

- I. Detect and neutralize enemy submarines operating in shallow coastal waters.
- II. Conduct:
 - A. Coastal patrols.
 - B. Maritime surveillance.
 - C. Search and Rescue (SAR).
 - D. Low-intensity maritime operations.
 - E. Coordination with other naval assets.

FEATURES OF INS MALVAN

- I. **Class:** Mahe-class ASW Shallow Water Craft.
- II. **Role:** Anti-Submarine Warfare (ASW).
- III. **Operations:** Shallow coastal waters.
- IV. **Capabilities:**
 - A. Hull-mounted sonar.
 - B. Lightweight torpedoes.
 - C. Anti-submarine rockets.
 - D. Advanced communication and navigation systems.
 - E. Mine-laying capability.
- V. **Built in India:** Supports indigenous defence manufacturing.

SIGNIFICANCE

Strategic Importance

- Enhances underwater surveillance.
- Strengthens coastal security.

- I. **INS Malvan** is the **second Mahe-class Anti-Submarine Warfare Shallow Water Craft (ASW-SWC)** inducted into the Indian Navy.
- II. The vessel has been designed for:
 - A. Anti-submarine warfare (ASW).
 - B. Coastal surveillance.
 - C. Search and Rescue (SAR).
 - D. Low-intensity maritime operations.
 - E. Mine-laying capability.
- III. The ship has been **designed and built in India**, showcasing the country's growing indigenous defence manufacturing capabilities.
- IV. It is equipped with advanced:
 - A. Sonar systems.
 - B. Underwater surveillance equipment.
 - C. Modern navigation systems.
 - D. Anti-submarine weapons.

- Improves anti-submarine warfare capability.

Defence Manufacturing

- Promotes:
 - Make in India.
 - Aatmanirbhar Bharat.
 - Indigenous shipbuilding ecosystem.

Maritime Security

- Supports India's vision of **SAGAR (Security and Growth for All in the Region)**.
- Enhances operational readiness in the Indian Ocean Region (IOR).

KEY HIGHLIGHTS

- **Ship:** INS Malvan.
- **Class:** Mahe-class ASW Shallow Water Craft.
- **Operator:** Indian Navy.
- **Primary Role:** Anti-Submarine Warfare in shallow coastal waters.
- **Strategic Significance:** Strengthens maritime security and underwater defence.
- **Industrial Significance:** Boosts indigenous defence production under Make in India.
- **Challenges:** Rapid technological advancements in submarine warfare, underwater surveillance requirements, and evolving maritime threats.
- **Way Forward:** Expand indigenous shipbuilding, integrate AI-enabled underwater surveillance, strengthen coastal security networks, and enhance interoperability with other naval platforms.

PRELIMS BOOSTER BOX

- **INS Malvan:** Second **Mahe-class Anti-Submarine Warfare Shallow Water Craft (ASW-SWC)** commissioned into the Indian Navy.
- **ASW: Anti-Submarine Warfare**—operations aimed at detecting, tracking, and neutralizing enemy submarines.

- **Mahe-Class:** Indigenous class of shallow water anti-submarine warfare vessels for the Indian Navy.
- **Indian Navy Motto:** "शं नो वरुणः (**Sham No Varunah**)" – *May the Lord of the Oceans be auspicious unto us.*
- **SAGAR: Security and Growth for All in the Region**—India's maritime cooperation vision announced in **2015**.
- **Indian Ocean Region (IOR):** Strategic maritime region connecting the Middle East, Africa, South Asia, and Southeast Asia.
- **Blue Water Navy:** A navy capable of sustained operations across the open oceans.
- **Make in India (Defence):** Initiative to promote indigenous defence manufacturing and reduce import dependence.
- **Aatmanirbhar Bharat:** National mission to enhance self-reliance across strategic sectors, including defence.
- **Abhay-Class Corvettes:** Older anti-submarine warfare corvettes that the Mahe-class is intended to replace.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

- INS Malvan** is the **second Mahe-class Anti-Submarine Warfare Shallow Water Craft** commissioned into the Indian Navy.
- The primary role of the Mahe-class vessels is **anti-submarine warfare in shallow coastal waters**.
- SAGAR** stands for **Security and Growth for All in the Region**.

Which of the statements given above is/are correct?

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

Answer: (d)

3. BRANCH OF THE BHARATIYA BEEJ SAHAKARI SAMITI LIMITED (BBSSL) IN BIHAR



- I. **No formal BBSSL branch** has been established in Bihar.
- II. Despite this, BBSSL operates through the State's cooperative network for:
 - A. Distribution of quality seeds.
 - B. Seed production.
 - C. Farmer participation.
- III. **Key achievements in Bihar:**
 - A. **3,418 cooperative societies** enrolled as BBSSL members.
 - B. **19,956 farmers** supplied with quality and affordable seeds during the current financial year.
 - C. **279 farmers** engaged in seed production covering **2,663 hectares** during the **Rabi 2025–26** season.

BACKGROUND / CONTEXT

What is BBSSL?

- **Bharatiya Beej Sahakari Samiti Limited (BBSSL)** is a **national-level multi-state cooperative society** established to strengthen India's seed ecosystem.
- **Established: 25 January 2023.**

- **Legal Basis:** Registered under the **Multi-State Cooperative Societies Act, 2002.**
- **Administrative Ministry:** Ministry of Cooperation.

Promoter Institutions

BBSSL has been promoted by:

- **IFFCO**
- **KRIBHCO** (Chief Promoter)
- **NAFED**
- **National Dairy Development Board (NDDB)**
- **National Cooperative Development Corporation (NCDC)**

OBJECTIVES OF BBSSL

- Produce and distribute **quality certified seeds**.
- Improve the **Seed Replacement Rate (SRR)**.
- Promote **Varietal Replacement Rate (VRR)**.
- Encourage farmer participation in seed production.
- Strengthen cooperative institutions in agriculture.
- Conserve and promote indigenous seed varieties.

SIGNIFICANCE FOR BIHAR

- Improves farmers' access to certified and affordable seeds.
- Enhances agricultural productivity.
- Promotes cooperative-led seed production.
- Generates additional income for seed-producing farmers.
- Strengthens Bihar's cooperative agriculture ecosystem without establishing a separate branch office.

KEY HIGHLIGHTS

- **Organisation:** Bharatiya Beej Sahakari Samiti Limited (BBSSL).
- **Branch in Bihar:** No formal branch office established.
- **Mode of Operation:** Through cooperative societies.



- **Cooperative Members in Bihar: 3,418.**
- **Farmers Benefited: 19,956.**
- **Seed Production: 279 farmers** over **2,663 hectares** (Rabi 2025–26).
- **Lead Ministry:** Ministry of Cooperation.
- **Strategic Importance:** Supports **Sahkar Se Samriddhi**, quality seed availability, and agricultural productivity.

PRELIMS BOOSTER BOX

- **BBSSL:** Bharatiya Beej Sahakari Samiti Limited.
- **Established:** 25 January 2023.
- **Registered Under:** Multi-State Cooperative Societies Act, 2002.
- **Administrative Ministry:** Ministry of Cooperation.
- **Chief Promoter:** KRIBHCO.
- **Other Promoters:** IFFCO, NAFED, NDDB, and NCDC.
- **Objective:** Production, procurement, processing, certification, branding, and distribution of quality seeds through the cooperative network.
- **Seed Replacement Rate (SRR):** Percentage of cultivated area sown using **certified or quality seeds** instead of farm-saved seeds.
- **Varietal Replacement Rate (VRR):** Rate at which old crop varieties are replaced with improved, high-yielding varieties.
- **Vision:** "Sahkar Se Samriddhi" (Prosperity through Cooperation).

PadhAI-GENERATED UPSC MCQ

Consider the following statements regarding the Bharatiya Beej Sahakari Samiti Limited (BBSSL):

1. It was established in **2023** under the **Multi-State Cooperative Societies Act, 2002**.
2. It functions under the **Ministry of Cooperation**.
3. A formal branch office of BBSSL has been established in Bihar.

Which of the statements given above is/are correct?

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

Answer: (a)

4. PARLIAMENT QUESTION: NUCLEAR ENERGY MISSION FOR VIKSIT BHARAT



परमाणु ऊर्जा विभाग

Department Of Atomic Energy

- I. The **Nuclear Energy Mission for Viksit Bharat** is a major initiative to increase nuclear power generation as part of India's long-term energy strategy.
- II. The Mission supports:
 - A. Expansion of nuclear power capacity.
 - B. Development of **Small Modular Reactors (SMRs)**.
 - C. Indigenous reactor technologies.
 - D. Greater participation of Indian industry in the nuclear supply chain.
- III. Nuclear energy is expected to play a significant role in achieving:
 - A. Net Zero emissions by **2070**.
 - B. Energy security.
 - C. Reliable 24×7 clean electricity.
- IV. The programme is implemented under the **Department of Atomic Energy (DAE)** through **Nuclear Power Corporation of India Limited (NPCIL)** and **Bharatiya Nabhikiya Vidyut Nigam Limited (BHAVINI)**.

BACKGROUND / CONTEXT

India's Nuclear Power Programme

India follows the **Three-Stage Nuclear Power Programme**, conceived by **Dr. Homi Jehangir Bhabha**, to maximize the utilization of the country's limited uranium and abundant thorium resources.

Three Stages

Stage I

- I. **Pressurised Heavy Water Reactors (PHWRs).**
- II. Fuel:
 - A. Natural Uranium.
- III. Produces:
 - A. Electricity.
 - B. Plutonium for Stage II.

Stage II

- I. **Fast Breeder Reactors (FBRs).**
- II. Fuel:
 - A. Plutonium-based mixed oxide fuel.
- III. Objective:
 - A. Breed more fissile material than consumed.

Stage III

- I. **Thorium-Based Reactors.**
- II. Uses:
 - A. Uranium-233 produced from Thorium-232.
- III. India possesses one of the world's largest thorium reserves.

NUCLEAR ENERGY MISSION

Major Objectives

- Expand nuclear power generation.
- Promote indigenous reactor manufacturing.
- Develop **Small Modular Reactors (SMRs)**.
- Strengthen research and innovation.
- Increase private sector participation in non-core nuclear activities.
- Support India's clean energy transition.

IMPORTANCE OF NUCLEAR ENERGY

Energy Security

- Provides reliable baseload electricity.
- Reduces dependence on imported fossil fuels.

Climate Action

- Low-carbon source of electricity.
- Supports India's commitments under the **Paris Agreement**.

Economic Growth

- Encourages high-technology manufacturing.
- Creates skilled employment.
- Promotes indigenous technology development.

KEY HIGHLIGHTS

- I. **Mission:** Nuclear Energy Mission for Viksit Bharat.
- II. **Lead Department:** Department of Atomic Energy (DAE).
- III. **Implementing Agencies:** NPCIL and BHAVINI.
- IV. **Focus Areas:**
 - A. Nuclear power expansion.
 - B. Small Modular Reactors (SMRs).
 - C. Indigenous technologies.
 - D. Private sector participation.
- V. **Strategic Significance:** Enhances energy security and supports Net Zero by 2070.
- VI. **Challenges:** High capital costs, long project timelines, nuclear waste management, public acceptance, and fuel availability.
- VII. **Way Forward:** Accelerate indigenous reactor deployment, expand uranium exploration, strengthen nuclear safety, promote advanced reactor technologies, and invest in thorium-based systems.

PRELIMS BOOSTER BOX

- **Department of Atomic Energy (DAE):** Established in **1954**; functions directly under the **Prime Minister**.
- **Nuclear Power Corporation of India Limited (NPCIL):** Public Sector Enterprise responsible for



the design, construction, commissioning, and operation of nuclear power plants (except fast breeder reactors).

- **BHAVINI (Bharatiya Nabhikiya Vidyut Nigam Limited):** Operates **Fast Breeder Reactors (FBRs)**.
- **Three-Stage Nuclear Programme:** Conceived by **Dr. Homi J. Bhabha**.
- **PHWR:** Pressurised Heavy Water Reactor using natural uranium as fuel and heavy water as moderator.
- **Fast Breeder Reactor (FBR):** Produces more fissile material than it consumes.
- **Thorium:** India has one of the world's largest reserves, mainly in **monazite sands** along the coasts of **Kerala, Tamil Nadu, Andhra Pradesh, and Odisha**.
- **Small Modular Reactor (SMR):** Advanced nuclear reactor with lower capacity, modular construction, enhanced safety, and flexible deployment.
- **Atomic Energy Act, 1962:** Governs the development and control of atomic energy in India.
- **AERB (Atomic Energy Regulatory Board):** India's nuclear safety regulator, established in **1983**.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. India's **Three-Stage Nuclear Power Programme** was conceived by **Dr. Homi Jehangir Bhabha**.
2. **Pressurised Heavy Water Reactors (PHWRs)** constitute the **first stage** of India's nuclear programme.
3. **BHAVINI** is primarily associated with **Fast Breeder Reactors (FBRs)**.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

Answer: (d)

5. 'HERITAGE ARTISAN COOPERATIVES'



- Heritage Artisan Cooperatives** are being promoted to organize traditional artisans into cooperative societies for collective production, value addition, branding, and marketing.
- The initiative focuses on artisans engaged in:
 - A. Handloom.
 - B. Handicrafts.
 - C. Pottery.
 - D. Woodcraft.
 - E. Metal crafts.

- F. Bamboo and cane products.
- G. Tribal and indigenous crafts.
- III. Through the cooperative model, artisans can benefit from:
 - A. Better market access.
 - B. Affordable institutional credit.
 - C. Common infrastructure.
 - D. Skill upgradation.
 - E. Digital marketing.
 - F. Export opportunities.
- IV. The initiative supports rural livelihoods, women's empowerment, and the preservation of India's cultural heritage.

BACKGROUND / CONTEXT

Cooperative Model

A cooperative is a voluntary association where members jointly own and democratically manage an enterprise for their mutual economic and social benefit. The Government is promoting cooperatives under the vision of:

"Sahkar Se Samridhi" (Prosperity through Cooperation).

Importance of Traditional Artisans

Traditional artisans:

- Preserve India's cultural heritage.
- Generate rural employment.
- Promote sustainable livelihoods.
- Contribute to exports and tourism.
- Support the creative economy.

RELATED GOVERNMENT INITIATIVES

Ministry of Cooperation

- Established in **2021**.
- Promotes cooperative reforms and expansion.

PM Vishwakarma

- I. Launched in **2023**.
- II. Supports traditional artisans and craftspeople through:
 - A. Skill training.

- B. Toolkit incentives.
- C. Concessional credit.
- D. Digital transactions.
- E. Branding and marketing support.

National Handicrafts Development

Programme (NHDP)

- Supports handicraft clusters.
- Skill development.
- Design innovation.
- Marketing assistance.

National Handloom Development

Programme (NHDP)

- Promotes handloom production, technology, marketing, and welfare of weavers.

KEY HIGHLIGHTS

- I. **Initiative:** Heritage Artisan Cooperatives.
- II. **Lead Ministry:** Ministry of Cooperation.
- III. **Target Group:** Traditional artisans and craftspeople.
- IV. **Objectives:**
 - A. Strengthen artisan cooperatives.
 - B. Improve market access.
 - C. Promote branding and exports.
 - D. Enhance livelihoods.
 - E. Preserve traditional crafts.
- V. **Economic Significance:** Employment generation, rural industrialization, and export promotion.
- VI. **Social Significance:** Women's empowerment, inclusive growth, and preservation of traditional knowledge.
- VII. **Challenges:** Competition from machine-made products, fragmented markets, low productivity, limited digital access, and inadequate branding.
- VIII. **Way Forward:** Strengthen artisan cooperatives, integrate with e-commerce platforms, promote GI-tagged products, expand skill development,



improve design innovation, and enhance export facilitation.

PRELIMS BOOSTER BOX

- **Ministry of Cooperation:** Established in **2021** to strengthen India's cooperative movement.
- **Vision: "Sahkar Se Samriddhi" (Prosperity through Cooperation).**
- **PM Vishwakarma:** Central Sector Scheme launched in **2023** for traditional artisans and craftspeople.
- **Cooperative Society:** Democratic institution owned and managed by its members for mutual benefit.
- **97th Constitutional Amendment Act, 2011:** Gave constitutional status to cooperative societies by inserting **Article 43B** and **Part IXB** (Part IXB was later read down by the Supreme Court for State cooperatives while remaining applicable to Multi-State Cooperative Societies).
- **Article 43B:** Directs the State to promote voluntary formation, autonomous functioning, democratic control, and professional management of cooperative societies.
- **Multi-State Cooperative Societies Act, 2002:** Governs cooperative societies operating in more than one State.
- **GI Tag (Geographical Indication):** Protects products whose qualities or reputation are linked to a specific geographical origin.
- **Creative Economy:** Economic activities based on creativity, culture, traditional knowledge, and intellectual property.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **Ministry of Cooperation** was established in **2021**.
2. **PM Vishwakarma** is a scheme aimed at supporting traditional artisans and craftspeople.

3. **Article 43B** of the Constitution encourages the promotion of cooperative societies.

Which of the statements given above is/are correct?

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

Answer: (d)

1. PARLIAMENT QUESTION: RESEARCH, DEVELOPMENT AND INNOVATION (RDI) FUND UNDER ANRF



- I. The **RDI Fund** has been created under the **Anusandhan National Research Foundation (ANRF)** to support:
 - A. Scientific research.
 - B. Technological innovation.
 - C. Product development.
 - D. Commercialization of research outcomes.
- II. It seeks to:
 - A. Increase private sector participation in R&D.
 - B. Promote collaboration between academia, research institutions, startups, and industry.
 - C. Support strategic and emerging technologies.
- III. Priority sectors include:
 - A. Artificial Intelligence (AI).
 - B. Quantum Technology.
 - C. Biotechnology.
 - D. Semiconductors.
 - E. Clean Energy.
 - F. Space Technology.
 - G. Advanced Materials.

- IV. The initiative aims to improve India's global competitiveness in science and innovation.

BACKGROUND / CONTEXT

Anusandhan National Research Foundation (ANRF)

- Established through the **Anusandhan National Research Foundation Act, 2023**.
- Replaced the **Science and Engineering Research Board (SERB)**.
- Functions under the **Department of Science and Technology (DST)**, Ministry of Science and Technology.
- Serves as the apex body for promoting research and innovation across disciplines.

Objectives of ANRF

- Foster a culture of research and innovation.
- Support high-quality scientific research.
- Strengthen academia-industry partnerships.
- Promote interdisciplinary research.
- Enhance India's innovation ecosystem.

OBJECTIVES OF THE RDI FUND

- Finance translational and applied research.
- Encourage industry-led innovation.
- Bridge the gap between laboratory research and commercialization.
- Support startups and deep-tech innovation.
- Build research infrastructure.
- Promote private investment in R&D.

SIGNIFICANCE

Scientific Significance

- Encourages cutting-edge research.
- Supports frontier technologies.

Economic Significance

- Promotes innovation-led economic growth.
- Generates high-skilled employment.
- Improves industrial competitiveness.

Strategic Significance

- Strengthens technological self-reliance.



- Supports **Aatmanirbhar Bharat**.
- Enhances India's position in global innovation rankings.

KEY HIGHLIGHTS

- **Fund:** Research, Development and Innovation (RDI) Fund.
- **Institution:** Anusandhan National Research Foundation (ANRF).
- **Parent Ministry:** Ministry of Science and Technology.
- **Implementing Department:** Department of Science and Technology (DST).
- **Focus:** Research, innovation, commercialization, and industry-academia collaboration.
- **Priority Areas:** AI, Quantum Technology, Biotechnology, Semiconductors, Clean Energy, Space, Advanced Manufacturing.
- **Challenges:** Low private R&D investment, limited commercialization, fragmented research ecosystem, and shortage of industry-academia collaboration.
- **Way Forward:** Increase public-private partnerships, strengthen technology transfer offices, improve intellectual property support, encourage venture funding for deep-tech startups, and expand global research collaborations.

PRELIMS BOOSTER BOX

- **ANRF: Anusandhan National Research Foundation.**
- **Legal Basis: Anusandhan National Research Foundation Act, 2023.**
- **Replaced: Science and Engineering Research Board (SERB).**
- **Administrative Department: Department of Science and Technology (DST).**
- **Parent Ministry: Ministry of Science and Technology.**

- **Objective:** Promote research, innovation, and industry-academia collaboration across all disciplines.
- **RDI Fund:** Supports research, development, innovation, and commercialization of technologies.
- **National Education Policy (NEP), 2020:** Recommended establishing the **National Research Foundation (NRF)**, which was later operationalized as the **ANRF**.
- **Gross Expenditure on R&D (GERD):** Indicator measuring total national expenditure on research and development.
- **Deep Technology (Deep Tech):** Innovations based on substantial scientific or engineering advances, such as AI, quantum computing, semiconductors, and biotechnology.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **Anusandhan National Research Foundation (ANRF)** was established through an Act of Parliament in **2023**.
2. The **ANRF** replaced the **Science and Engineering Research Board (SERB)**.
3. The **Research, Development and Innovation (RDI) Fund** seeks to promote industry-academia collaboration and commercialization of research.

Which of the statements given above is/are correct?

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

Answer: (d)

2. GOVERNMENT HIGHLIGHTS SAFETY, PERFORMANCE AND NATIONAL BENEFITS OF ETHANOL-BLENDED PETROL



- I. **Ethanol-Blended Petrol (EBP)** involves mixing ethanol with petrol to reduce dependence on fossil fuels.
- II. The Government has stated that ethanol-blended petrol:
 - A. Is **safe for compatible vehicles**.
 - B. Does **not adversely affect engine performance** when used as per manufacturer specifications.
 - C. Reduces vehicular emissions.
 - D. Improves energy security.
 - E. Generates additional income for farmers.
- III. India has already achieved the target of **20% ethanol blending (E20)** ahead of schedule in several regions and is expanding infrastructure to support nationwide adoption.
- IV. Ethanol is produced primarily from:
 - A. Sugarcane juice.

- B. Sugar syrup.
- C. B-heavy molasses.
- D. C-heavy molasses.
- E. Food grains such as maize and surplus rice (as permitted by Government policy).

BACKGROUND / CONTEXT

Ethanol Blended Petrol (EBP) Programme

- I. **Launched: 2003.**
- II. **Nodal Ministry:** Ministry of Petroleum and Natural Gas.
- III. Implemented in coordination with:
 - A. Ministry of Consumer Affairs, Food & Public Distribution.
 - B. Ministry of Agriculture & Farmers Welfare.
 - C. Ministry of New and Renewable Energy.

Objectives

- Reduce crude oil imports.
- Improve energy security.
- Lower greenhouse gas emissions.
- Increase farmers' income.
- Promote biofuel production.

NATIONAL POLICY ON BIOFUELS, 2018 (AMENDED 2022)

Key Features

- I. Promotes:
 - A. First Generation (1G) Biofuels.
 - B. Second Generation (2G) Biofuels.
 - C. Advanced Biofuels.
- II. Expands the range of feedstocks for ethanol production.
- III. Supports the target of **20% ethanol blending (E20)**.
- IV. Encourages the establishment of advanced bio-refineries.

BENEFITS OF ETHANOL-BLENDED PETROL

Environmental

- Lower carbon monoxide emissions.
- Reduced particulate emissions.
- Cleaner combustion.
- Supports India's climate commitments.

Economic

- Reduces import bill for crude oil.
- Enhances energy security.
- Creates rural employment.
- Increases demand for agricultural produce.

Agricultural

- Additional income for sugarcane and maize farmers.
- Diversification of agricultural markets.

Automobile

- Modern vehicles designed for E20-compatible fuel can operate safely and efficiently with recommended ethanol blends.

KEY HIGHLIGHTS

- **Programme:** Ethanol Blended Petrol (EBP).
- **Launch:** 2003.
- **Target Blend:** 20% ethanol (E20).
- **Lead Ministry:** Ministry of Petroleum and Natural Gas.
- **Policy Framework:** National Policy on Biofuels, 2018 (amended in 2022).
- **Strategic Significance:** Energy security, reduced import dependence, and cleaner transport fuels.
- **Challenges:** Feedstock availability, storage and transport infrastructure, seasonal supply fluctuations, and gradual transition to E20-compatible vehicles.
- **Way Forward:** Expand ethanol production capacity, promote second-generation biofuels, strengthen logistics, encourage flex-fuel vehicles, and enhance farmer participation.

PRELIMS BOOSTER BOX

- **Ethanol:** Renewable biofuel produced by fermenting sugar- and starch-rich feedstocks.
- **EBP Programme:** Launched in **2003** to blend ethanol with petrol.
- **E20 Fuel:** Petrol containing **20% ethanol** and **80% petrol**.
- **National Policy on Biofuels:** Introduced in **2018** and amended in **2022**.
- **1G Biofuels:** Produced from food crops such as sugarcane, maize, and food grains.
- **2G Biofuels:** Produced from agricultural residues, crop waste, bamboo, and lignocellulosic biomass.
- **Flex-Fuel Vehicle (FFV):** Vehicle capable of operating on varying blends of petrol and ethanol.
- **SATAT Initiative: Sustainable Alternative Towards Affordable Transportation**—promotes **Compressed Biogas (CBG)** production from biomass and waste.
- **Energy Security:** Ensuring uninterrupted availability of energy at affordable prices.
- **Net Zero Target:** India aims to achieve **net-zero greenhouse gas emissions by 2070**.

PadhAI-GENERATED UPSC MCQ

Consider the following statements regarding the Ethanol Blended Petrol (EBP) Programme:

1. The **EBP Programme** was launched in **2003**.
2. The **National Policy on Biofuels** was introduced in **2018** and amended in **2022**.
3. **Second Generation (2G) biofuels** are produced primarily from agricultural residues and lignocellulosic biomass.

Which of the statements given above is/are correct?

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

Answer: (d)

3. MEASURES TAKEN TO TACKLE CYBER FRAUDS



BACKGROUND / CONTEXT

Cyber Fraud

Cyber fraud refers to financial or identity-related crimes committed using computers, mobile devices, communication networks, or the internet.

Common forms include:

- UPI fraud.
- Phishing.
- QR code scams.
- Investment scams.
- OTP fraud.
- Identity theft.
- Sextortion.
- Digital arrest scams.
- Malware and ransomware attacks.

MAJOR GOVERNMENT MEASURES

Indian Cyber Crime Coordination Centre (I4C)

- I. **Established:** 2018.
- II. **Ministry:** Ministry of Home Affairs.
- III. **Functions:**
 - A. National coordination.
 - B. Capacity building.
 - C. Cybercrime investigation support.
 - D. Cyber forensics.

National Cyber Crime Reporting Portal

- I. Official portal:
<https://cybercrime.gov.in>
- II. Enables citizens to report:
 - A. Financial fraud.
 - B. Cyber harassment.
 - C. Crimes against women and children.

National Helpline – 1930

- Dedicated helpline for reporting **online financial frauds**.
- Enables immediate coordination with banks to freeze fraudulent transactions.

- I. With the rapid growth of digital payments, e-commerce, and online banking, cyber frauds have increased significantly.
- II. The Government has adopted a **multi-pronged strategy** involving:
 - A. Prevention.
 - B. Detection.
 - C. Investigation.
 - D. Public awareness.
 - E. Capacity building.
- III. Key initiatives include:
 - A. **Indian Cyber Crime Coordination Centre (I4C).**
 - B. **National Cyber Crime Reporting Portal.**
 - C. **Citizen Financial Cyber Fraud Reporting and Management System (CFCFRMS).**
 - D. **National Cyber Crime Helpline – 1930.**
 - E. **Cyber Swachhta Kendra.**
 - F. **CERT-In advisories and incident response.**
- IV. Banks, telecom service providers, payment service providers, and law enforcement agencies work together to quickly detect and prevent fraudulent transactions.

Citizen Financial Cyber Fraud Reporting and Management System (CFCFRMS)

- I. Facilitates real-time reporting of financial cyber fraud.
- II. Coordinates with:
 - A. Banks.
 - B. Financial institutions.
 - C. Payment service providers.
 - D. Law enforcement agencies.

CERT-In

- I. **Indian Computer Emergency Response Team.**
- II. Functions under:
Ministry of Electronics and Information Technology (MeitY).
- III. Responsible for:
 - A. Cyber incident response.
 - B. Threat advisories.
 - C. Vulnerability management.
 - D. Cyber security coordination.

Cyber Swachhta Kendra

- Botnet Cleaning and Malware Analysis Centre.
- Provides free tools for malware detection and removal.

LEGAL FRAMEWORK

Information Technology Act, 2000

Provides legal provisions relating to:

- Hacking.
- Identity theft.
- Data protection-related offences.
- Electronic records.
- Cyber offences.

Bharatiya Nyaya Sanhita (BNS), 2023

Contains provisions relating to:

- Cheating.
- Forgery.
- Identity-related offences.
- Technology-enabled crimes.

KEY HIGHLIGHTS

- **Lead Ministry:** Ministry of Home Affairs.
- **Nodal Agency:** Indian Cyber Crime Coordination Centre (I4C).
- **Cyber Emergency Response:** CERT-In.
- **Reporting Portal:** National Cyber Crime Reporting Portal.
- **Emergency Helpline:** 1930.
- **Strategic Importance:** Protects India's digital economy and enhances public trust in digital payments.
- **Challenges:** Cross-border cybercrime, evolving fraud techniques, low cyber awareness, cryptocurrency misuse, and shortage of skilled investigators.
- **Way Forward:** Strengthen AI-based fraud detection, improve cyber literacy, expand digital forensic capabilities, enhance international cooperation, and encourage adoption of cyber hygiene practices.

PRELIMS BOOSTER BOX

- **I4C: Indian Cyber Crime Coordination Centre**, established in **2018** under the **Ministry of Home Affairs**.
- **Cyber Crime Helpline: 1930.**
- **CERT-In: Indian Computer Emergency Response Team**, functioning under **MeitY**.
- **Cyber Swachhta Kendra:** National Botnet Cleaning and Malware Analysis Centre.
- **Information Technology Act, 2000:** India's primary cyber law.
- **National Critical Information Infrastructure Protection Centre (NCIIPC):** Functions under the **National Technical Research Organisation (NTRO)** to protect critical information infrastructure.
- **Phishing:** Fraudulent attempt to obtain confidential information by impersonating a trusted entity.



- **Digital Arrest Scam:** Fraudsters impersonate law enforcement officials and coerce victims into transferring money.
- **Cyber Hygiene:** Safe online practices such as strong passwords, multi-factor authentication, regular software updates, and avoiding suspicious links.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **Indian Cyber Crime Coordination Centre (I4C)** functions under the **Ministry of Home Affairs**.
2. **CERT-In** functions under the **Ministry of Electronics and Information Technology (MeitY)**.
3. The **National Cyber Crime Helpline 1930** is used for reporting online financial frauds.

Which of the statements given above is/are correct?

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

Answer: (d)

4. PROMOTING INDIAN CULTURE ABROAD



- I. India promotes its cultural heritage globally through:
 - A. Cultural exchange programmes.
 - B. International festivals.

- C. Yoga and Ayurveda promotion.
- D. Scholarships.
- E. Academic collaborations.
- F. Restoration of cultural heritage.
- G. Promotion of Indian languages, arts, music, dance, and literature.

- II. The **Indian Council for Cultural Relations (ICCR)** is the principal organization responsible for implementing India's cultural diplomacy.
- III. Indian Missions and Cultural Centres abroad organize:
 - A. Cultural festivals.
 - B. Exhibitions.
 - C. Dance and music performances.
 - D. Hindi and Sanskrit classes.
 - E. Celebrations of Indian festivals.
- IV. Global observance of the **International Day of Yoga (21 June)** has significantly enhanced India's cultural outreach.

BACKGROUND / CONTEXT

Cultural Diplomacy

Cultural diplomacy refers to the use of a country's culture, traditions, values, arts, and heritage to strengthen international relations and foster mutual understanding.

India's cultural diplomacy is based on:

- Ancient civilization.
- Democratic values.
- Diversity.
- Shared heritage.
- Soft power.

MAJOR INSTITUTIONS

Indian Council for Cultural Relations (ICCR)

- I. **Established: 1950.**
- II. **Founder: Maulana Abul Kalam Azad.**
- III. **Administrative Ministry:** Ministry of External Affairs.
- IV. **Functions:**
 - A. Cultural exchange programmes.

- B. Scholarships for foreign students.
- C. Cultural festivals.
- D. Establishment of Indian Cultural Centres abroad.

Ministry of Culture

Supports:

- Cultural preservation.
- International cultural cooperation.
- Museums.
- Performing arts.
- Heritage conservation.

MAJOR INITIATIVES

International Day of Yoga

- Celebrated annually on **21 June**.
- Declared by the **United Nations General Assembly (UNGA)** in **2014** following India's proposal.

Festival of India

- I. Organized in various countries.
- II. Showcases:
 - A. Indian dance.
 - B. Music.
 - C. Cuisine.
 - D. Crafts.
 - E. Literature.

Scholarship Programmes

ICCR offers scholarships for international students to pursue higher education in India.

Buddhist and Civilizational Diplomacy

Promotion of:

- Buddhist heritage.
- Nalanda legacy.
- Shared cultural links with Southeast Asia and other regions.

SIGNIFICANCE

Diplomatic

- Strengthens bilateral relations.

- Enhances people-to-people contacts.

Economic

- Promotes tourism.
- Supports creative industries.
- Encourages investment.

Strategic

- Enhances India's global image.
- Expands India's soft power.
- Strengthens diaspora engagement.

KEY HIGHLIGHTS

- I. **Lead Ministry:** Ministry of External Affairs.
- II. **Key Institution:** Indian Council for Cultural Relations (ICCR).
- III. **Objectives:**
 - A. Promote Indian culture globally.
 - B. Strengthen cultural diplomacy.
 - C. Foster international goodwill.
 - D. Enhance India's soft power.
- IV. **Major Tools:** Yoga, Ayurveda, classical arts, festivals, scholarships, cultural centres, and heritage diplomacy.
- V. **Challenges:** Competition in global cultural outreach, limited resources, digital engagement gaps, and preservation of intangible heritage.
- VI. **Way Forward:** Expand Indian Cultural Centres, strengthen digital cultural diplomacy, promote Indian languages internationally, deepen collaborations with UNESCO, and leverage the Indian diaspora for cultural outreach.

PRELIMS BOOSTER BOX

- **ICCR: Indian Council for Cultural Relations.**
- **Established: 1950.**
- **Founder: Maulana Abul Kalam Azad.**
- **Administrative Ministry: Ministry of External Affairs.**
- **International Day of Yoga:** Celebrated on **21 June**; adopted by the **United Nations General Assembly (UNGA)** in **2014**.



- **Soft Power:** The ability of a country to influence others through culture, values, and diplomacy rather than military or economic coercion.
- **UNESCO Intangible Cultural Heritage:** Includes traditions, performing arts, rituals, festivals, and traditional knowledge recognized for their cultural significance.
- **Vasudhaiva Kutumbakam:** Sanskrit phrase meaning "The World is One Family."
- **Festival of India:** Cultural festivals organized abroad to showcase India's art, culture, cuisine, crafts, and heritage.
- **Project Mausam:** Initiative to revive and strengthen India's ancient maritime cultural links across the Indian Ocean Region.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

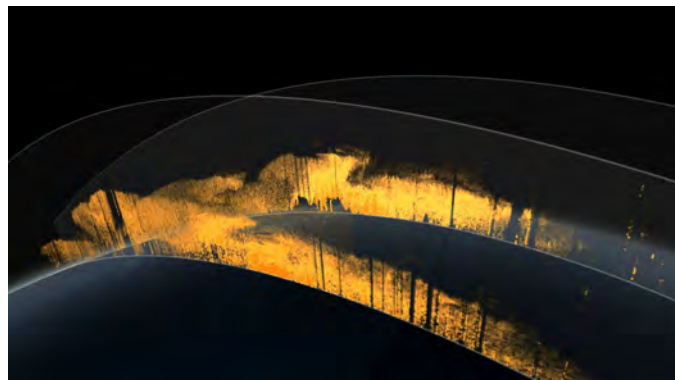
1. The **Indian Council for Cultural Relations (ICCR)** was established in **1950** under the **Ministry of External Affairs**.
2. **Maulana Abul Kalam Azad** was the founder of the ICCR.
3. The **International Day of Yoga** is observed every year on **21 June**.

Which of the statements given above is/are correct?

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

Answer: (d)

5. UNRAVELING GLOBAL AEROSOL DIVERSITY PROVIDES THE KEY TO DECODING CLIMATE CHANGE



- I. **Aerosols** are tiny solid or liquid particles suspended in the atmosphere.
- II. They originate from both:
 - A. **Natural sources** – dust storms, sea salt, volcanic eruptions, wildfires, pollen.
 - B. **Human activities** – fossil fuel combustion, industrial emissions, biomass burning, and vehicular pollution.
- III. Different aerosol types have distinct effects on climate:
 - A. Some **reflect sunlight**, producing a cooling effect.
 - B. Others **absorb heat**, contributing to atmospheric warming.
- IV. Understanding aerosol diversity helps improve:
 - A. Climate projections.
 - B. Weather forecasting.
 - C. Air quality assessments.
 - D. Climate adaptation strategies.

BACKGROUND / CONTEXT

What are Aerosols?

Aerosols are microscopic particles or droplets suspended in the atmosphere.

Natural Aerosols

- Desert dust.



- Sea salt.
- Volcanic ash.
- Forest fire smoke.
- Biological particles (pollen, spores).

Anthropogenic Aerosols

- Sulphate particles.
- Black carbon (soot).
- Organic carbon.
- Industrial emissions.
- Vehicular emissions.

ROLE OF AEROSOLS IN CLIMATE

Direct Effect

- Scatter or absorb incoming solar radiation.
- **Sulphate aerosols** generally cool the Earth by reflecting sunlight.
- **Black carbon** absorbs solar radiation, causing atmospheric warming.

Indirect Effect

- I. Act as **Cloud Condensation Nuclei (CCN)**.
- II. Influence:
 - A. Cloud formation.
 - B. Cloud brightness.
 - C. Cloud lifetime.
 - D. Rainfall patterns.

Surface and Atmospheric Effects

- Modify regional monsoon circulation.
- Influence glacier melting through black carbon deposition.
- Affect visibility and air quality.

IMPORTANCE OF STUDYING GLOBAL

AEROSOL DIVERSITY

- Reduces uncertainties in climate models.
- Improves prediction of extreme weather events.
- Enhances understanding of regional climate variability.
- Supports formulation of climate mitigation policies.

- Helps distinguish between natural and human-induced climate impacts.

KEY HIGHLIGHTS

- **Subject:** Atmospheric aerosols and climate change.
- **Scientific Importance:** Improves climate model accuracy.
- **Environmental Importance:** Better understanding of radiative forcing and cloud processes.
- **Policy Importance:** Supports evidence-based climate adaptation and pollution control.
- **Challenges:** Complex aerosol chemistry, varying lifetimes, diverse sources, and limited observations over oceans and remote regions.
- **Way Forward:** Expand satellite observations, strengthen ground-based monitoring networks, integrate aerosol diversity into climate models, and reduce anthropogenic emissions through cleaner technologies.

PRELIMS BOOSTER BOX

- **Aerosols:** Tiny solid or liquid particles suspended in the atmosphere.
- **Natural Sources:** Dust, sea salt, volcanic ash, wildfire smoke, pollen.
- **Anthropogenic Sources:** Industrial emissions, vehicle exhaust, biomass burning, fossil fuel combustion.
- **Black Carbon:** Strong sunlight-absorbing aerosol that contributes to atmospheric warming and glacier melting.
- **Sulphate Aerosols:** Primarily reflect solar radiation, producing a cooling effect.
- **Cloud Condensation Nuclei (CCN):** Aerosol particles on which water vapour condenses to form cloud droplets.
- **Radiative Forcing:** Change in Earth's energy balance caused by factors such as greenhouse gases or aerosols.



- **Aerosol Optical Depth (AOD):** Measure of the amount of aerosol present in a vertical column of the atmosphere.
- **IPCC: Intergovernmental Panel on Climate Change**, established by the **World Meteorological Organization (WMO)** and the **United Nations Environment Programme (UNEP)** in 1988.
- **National Clean Air Programme (NCAP):** India's flagship programme to reduce particulate air pollution in cities.

PadhAI-GENERATED UPSC MCQ

Consider the following statements regarding atmospheric aerosols:

1. Aerosols may originate from both natural processes and human activities.
2. Black carbon generally absorbs solar radiation and contributes to atmospheric warming.
3. Aerosols can act as **Cloud Condensation Nuclei (CCN)** and influence cloud formation.

Which of the statements given above is/are correct?

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

Answer: (d)

1. SAVING SOIL, SECURING FARMS

Organic Farming Methods in India



- I. Soil degradation due to erosion, nutrient depletion, salinity, excessive fertilizer use, and climate change poses a major challenge to Indian agriculture.
- II. The Government has launched several programmes to:
 - A. Improve soil fertility.
 - B. Promote balanced fertilizer use.
 - C. Encourage organic and natural farming.
 - D. Reduce land degradation.
 - E. Enhance water-use efficiency.
- III. Key initiatives include:
 - A. **Soil Health Card Scheme.**
 - B. **Pradhan Mantri Krishi Sinchayee Yojana (PMKSY).**
 - C. **National Mission for Sustainable Agriculture (NMSA).**
 - D. **Paramparagat Krishi Vikas Yojana (PKVY).**
 - E. **National Mission on Natural Farming (NMNF).**

- IV. These measures contribute to sustainable agricultural production and climate resilience.

BACKGROUND / CONTEXT

Importance of Soil

Soil is a vital natural resource that:

- Supports crop production.
- Stores carbon.
- Regulates the water cycle.
- Maintains biodiversity.
- Sustains ecosystem services.

Major Causes of Soil Degradation

- Soil erosion.
- Excessive use of chemical fertilizers.
- Salinity and waterlogging.
- Deforestation.
- Unsustainable farming practices.
- Climate change.

MAJOR GOVERNMENT INITIATIVES

Soil Health Card (SHC) Scheme

- I. **Launched: 2015.**
- II. **Ministry:** Ministry of Agriculture & Farmers Welfare.
- III. Provides farmers with:
 - A. Soil nutrient status.
 - B. Fertilizer recommendations.
 - C. Advice for balanced nutrient management.

Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)

- I. Promotes:
 - A. Efficient irrigation.
 - B. Water conservation.
 - C. Watershed development.
- II. Motto:

"Har Khet Ko Pani" and "Per Drop More Crop."

National Mission for Sustainable Agriculture (NMSA)

- I. Part of the **National Action Plan on Climate Change (NAPCC)**.
- II. Focuses on:
 - A. Soil health management.
 - B. Climate-resilient agriculture.
 - C. Integrated farming systems.

Paramparagat Krishi Vikas Yojana (PKVY)

- I. Promotes:
 - A. Organic farming.
 - B. Cluster-based cultivation.
 - C. Organic certification.

National Mission on Natural Farming (NMNF)

- I. Encourages:
 - A. Chemical-free farming.
 - B. Indigenous farming practices.
 - C. Soil biodiversity restoration.

SIGNIFICANCE

Agricultural

- Improves crop productivity.
- Enhances nutrient-use efficiency.
- Reduces input costs.

Environmental

- Prevents land degradation.
- Conserves biodiversity.
- Enhances carbon sequestration.

Economic

- Improves farmers' incomes.
- Reduces dependence on costly chemical inputs.

Climate

- Supports climate-resilient agriculture.
- Enhances drought resilience.

KEY HIGHLIGHTS

- **Lead Ministry:** Ministry of Agriculture & Farmers Welfare.
- **Focus Areas:** Soil conservation, sustainable agriculture, nutrient management, and water-use efficiency.
- **Major Schemes:** Soil Health Card Scheme, PMKSY, NMSA, PKVY, NMNF.
- **Strategic Importance:** Ensures food security, sustainable agriculture, and climate resilience.
- **Challenges:** Soil erosion, declining organic carbon, excessive fertilizer use, groundwater depletion, and climate variability.
- **Way Forward:** Expand soil testing, promote integrated nutrient management, encourage regenerative agriculture, strengthen watershed management, and increase adoption of organic and natural farming.

PRELIMS BOOSTER BOX

- **Soil Health Card Scheme:** Launched in **2015** to provide soil nutrient status and fertilizer recommendations.
- **PMKSY: Pradhan Mantri Krishi Sinchayee Yojana;** motto—"Har Khet Ko Pani" and "Per Drop More Crop."
- **NMSA: National Mission for Sustainable Agriculture,** one of the missions under the **National Action Plan on Climate Change (NAPCC)**.
- **PKVY: Paramparagat Krishi Vikas Yojana,** promotes cluster-based organic farming.
- **National Mission on Natural Farming (NMNF):** Promotes sustainable, chemical-free farming practices.
- **Integrated Nutrient Management (INM):** Balanced use of chemical fertilizers, organic manure, and bio-fertilizers to maintain soil fertility.
- **Soil Organic Carbon (SOC):** Key indicator of soil health, fertility, and carbon storage.

- **Land Degradation Neutrality (LDN):** A global target under the **United Nations Convention to Combat Desertification (UNCCD)** aimed at balancing land degradation with restoration.
- **UNCCD:** One of the three **Rio Conventions**, alongside the **UNFCCC** and the **Convention on Biological Diversity (CBD)**.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **Soil Health Card Scheme** was launched in **2015**.
2. **National Mission for Sustainable Agriculture (NMSA)** is a mission under the **National Action Plan on Climate Change (NAPCC)**.
3. **Paramparagat Krishi Vikas Yojana (PKVY)** promotes cluster-based organic farming.

Which of the statements given above is/are correct?

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

Answer: (d)

2. HIGH PRECISION MEDICAL INSTRUMENTS



- I. High precision medical instruments are advanced devices used for:
 - A. Diagnosis.
 - B. Surgery.

- C. Monitoring.
 - D. Laboratory testing.
 - E. Imaging.
- II. India is promoting domestic manufacturing through:
 - A. **Production Linked Incentive (PLI) Scheme for Medical Devices.**
 - B. **Medical Devices Parks Scheme.**
 - C. Research and innovation support.
 - D. Regulatory reforms.
- III. These initiatives aim to:
 - A. Reduce imports.
 - B. Improve affordability.
 - C. Enhance quality healthcare.
 - D. Promote exports.
 - E. Strengthen India's medical technology ecosystem.

BACKGROUND / CONTEXT

What are High Precision Medical Instruments?

These are sophisticated medical devices that provide accurate diagnosis, treatment, and monitoring.

Examples include:

- MRI scanners.
- CT scanners.
- PET scanners.
- Robotic surgical systems.
- Ultrasound machines.
- Endoscopy equipment.
- Dialysis machines.
- Ventilators.
- High-precision laboratory analyzers.
- Molecular diagnostic instruments.

GOVERNMENT INITIATIVES

Production Linked Incentive (PLI) Scheme for Medical Devices

- I. **Launched:** 2020.
- II. Promotes domestic manufacturing of:

- A. High-end medical devices.
- B. Imaging equipment.
- C. Diagnostic equipment.
- D. Cancer care devices.

Scheme for Promotion of Medical Devices

Parks

- I. Supports development of:
 - A. Common testing facilities.
 - B. Manufacturing infrastructure.
 - C. Research facilities.
- II. Helps reduce production costs.

National Medical Devices Policy, 2023

- I. Aims to:
 - A. Make India a global hub for medical devices.
 - B. Promote innovation.
 - C. Strengthen regulatory systems.
 - D. Increase exports.
 - E. Encourage research and skill development.

SIGNIFICANCE

Healthcare

- Improves diagnostic accuracy.
- Enables minimally invasive procedures.
- Enhances patient safety.

Economic

- Reduces import dependence.
- Promotes manufacturing.
- Generates skilled employment.

Technological

- Encourages innovation in MedTech.
- Supports AI-enabled diagnostics.
- Strengthens indigenous R&D.

KEY HIGHLIGHTS

- **Sector:** Medical Devices.
- **Lead Ministry:** Ministry of Chemicals and Fertilizers (Department of Pharmaceuticals).

- **Major Policy:** National Medical Devices Policy, 2023.
- **Key Schemes:** PLI Scheme for Medical Devices and Medical Devices Parks Scheme.
- **Strategic Importance:** Affordable healthcare, technological self-reliance, and export promotion.
- **Challenges:** High import dependence, technology gaps, skilled manpower shortages, regulatory compliance, and limited domestic R&D.
- **Way Forward:** Expand indigenous manufacturing, strengthen quality standards, increase investment in medical technology research, promote academia-industry collaboration, and encourage AI-driven healthcare innovation.

PRELIMS BOOSTER BOX

- **Medical Device:** Instrument, apparatus, machine, implant, reagent, or software used for diagnosis, prevention, monitoring, treatment, or alleviation of disease.
- **PLI Scheme for Medical Devices:** Launched in **2020** to encourage domestic manufacturing of high-end medical devices.
- **Medical Devices Parks Scheme:** Supports common infrastructure for manufacturing and testing of medical devices.
- **National Medical Devices Policy, 2023:** Aims to make India a global leader in medical device manufacturing and innovation.
- **Department of Pharmaceuticals:** Functions under the **Ministry of Chemicals and Fertilizers** and oversees policies related to pharmaceuticals and medical devices.
- **CDSO (Central Drugs Standard Control Organisation):** India's national regulatory authority for drugs and medical devices under the **Ministry of Health and Family Welfare**.
- **Medical Devices Rules, 2017:** Regulate the manufacture, import, sale, and clinical investigation of medical devices in India.



- **MedTech:** The sector encompassing medical devices, diagnostics, digital health technologies, and related innovations.
- **Atmanirbhar Bharat:** Initiative to strengthen domestic manufacturing and reduce import dependence across strategic sectors.

PadhAI-GENERATED UPSC MCQ

Consider the following statements regarding the medical devices sector in India:

1. The **National Medical Devices Policy** was launched in **2023**.
2. The **Production Linked Incentive (PLI) Scheme for Medical Devices** aims to promote domestic manufacturing of high-end medical devices.
3. The **Central Drugs Standard Control Organisation (CDSCO)** functions under the **Ministry of Health and Family Welfare**.

Which of the statements given above is/are correct?

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

Answer: (d)

3. TWO LAKH ANGANWADI CENTRES APPROVED FOR UPGRADATION AS SAKSHAM ANGANWADIS TO IMPROVE NUTRITION AND EARLY CHILDHOOD CARE



- Saksham Anganwadis** are upgraded Anganwadi Centres equipped with improved infrastructure and modern facilities.
- The initiative aims to transform existing Anganwadi Centres into **model centres** that provide:
 - A. Better nutrition services.
 - B. Early Childhood Care and Education (ECCE).
 - C. Health monitoring.
 - D. Growth tracking.
 - E. Safe and child-friendly learning environments.
- 2 lakh Anganwadi Centres** across the country have been approved for phased upgradation.

- IV. The programme forms a key component of **Saksham Anganwadi and POSHAN 2.0**, launched to address malnutrition and improve child development outcomes.

BACKGROUND / CONTEXT

Anganwadi Centres (AWCs)

- I. Established under the **Integrated Child Development Services (ICDS)** Scheme.
- II. Act as the village-level platform for delivering:
 - A. Supplementary nutrition.
 - B. Preschool education.
 - C. Immunization support.
 - D. Health check-ups.
 - E. Nutrition and health education.
 - F. Referral services.

SAKSHAM ANGANWADI

Objectives

- I. Improve nutritional outcomes among:
 - A. Children (0–6 years).
 - B. Pregnant women.
 - C. Lactating mothers.
- II. Strengthen Early Childhood Care and Education (ECCE).
- III. Upgrade infrastructure and digital facilities.
- IV. Promote convergence between health, nutrition, and education services.

Key Features

- Modern buildings.
- Child-friendly classrooms.
- Smart learning aids.
- Improved sanitation and drinking water.
- Growth monitoring devices.
- Digital record-keeping.
- Better cooking and nutrition facilities.

POSHAN 2.0

Launched

- 2021

Ministry

- Ministry of Women and Child Development.

Focus Areas

- Maternal nutrition.
- Child nutrition.
- Adolescent girls.
- Behaviour change communication.
- Growth monitoring.
- Technology-enabled service delivery.

EARLY CHILDHOOD CARE AND EDUCATION (ECCE)

ECCE focuses on the holistic development of children aged **3–6 years**, including:

- Cognitive development.
- Language skills.
- Social and emotional development.
- Physical development.
- School readiness.

It is also emphasized under the **National Education Policy (NEP), 2020**.

SIGNIFICANCE

Health

- Reduces malnutrition.
- Improves child growth.
- Supports maternal health.

Education

- Strengthens foundational learning.
- Enhances school readiness.

Social

- Improves community participation.
- Supports women's empowerment through better childcare services.

Economic

- Builds human capital.
- Enhances long-term productivity.

KEY HIGHLIGHTS

- **Programme:** Saksham Anganwadi and POSHAN 2.0.
- **Lead Ministry:** Ministry of Women and Child Development.
- **Approved Upgradation: 2 lakh Anganwadi Centres.**
- **Major Focus:** Nutrition, Early Childhood Care and Education (ECCE), health monitoring, and improved infrastructure.
- **Beneficiaries:** Children (0–6 years), pregnant women, lactating mothers, and adolescent girls.
- **Challenges:** Infrastructure gaps, shortage of trained personnel, digital connectivity, and regional disparities.
- **Way Forward:** Complete upgradation of all approved centres, strengthen digital monitoring, improve capacity building of Anganwadi workers, ensure convergence with health and education departments, and enhance community participation.

PRELIMS BOOSTER BOX

- **Anganwadi Centres (AWCs):** Village-level centres delivering nutrition, preschool education, health, and welfare services.
- **ICDS (Integrated Child Development Services):** Launched on **2 October 1975**; one of India's flagship programmes for child development.
- **Saksham Anganwadi and POSHAN 2.0:** Launched in **2021** by the **Ministry of Women and Child Development**.
- **POSHAN: Prime Minister's Overarching Scheme for Holistic Nutrition.**
- **ECCE (Early Childhood Care and Education):** Holistic care and education for children aged **3–6 years**.
- **National Education Policy (NEP), 2020:** Recommends universal access to quality ECCE

and introduces the **5+3+3+4** curricular structure.

- **Poshan Tracker:** ICT-based platform for real-time monitoring of nutrition services delivered through Anganwadi Centres.
- **Mission Saksham Anganwadi:** Seeks to develop modern, well-equipped Anganwadi Centres as centres of excellence for child development.
- **SDG 2: Zero Hunger.**
- **SDG 3: Good Health and Well-being.**

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. **Saksham Anganwadi and POSHAN 2.0** is implemented by the **Ministry of Women and Child Development**.
2. **Integrated Child Development Services (ICDS)** was launched in **1975**.
3. **Early Childhood Care and Education (ECCE)** under the **National Education Policy (NEP), 2020** primarily focuses on children in the **3–6 years** age group.

Which of the statements given above is/are correct?

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

Answer: (d)

4. MEASURES TAKEN TO CURB CHILDHOOD HYPERTENSION AND OBESITY



- I. Childhood obesity and hypertension are emerging public health concerns due to:
 - A. Unhealthy diets.
 - B. Physical inactivity.
 - C. Excessive screen time.
 - D. Increased consumption of ultra-processed foods.
- II. The Government has adopted preventive measures through:
 - A. **POSHAN Abhiyaan.**
 - B. **PM POSHAN Scheme.**
 - C. **Ayushman Bharat – School Health & Wellness Programme (SHWP).**
 - D. **National Programme for Prevention and Control of Non-Communicable Diseases (NP-NCD).**
 - E. Public awareness campaigns promoting healthy lifestyles.
- III. Schools are encouraged to promote:
 - A. Balanced nutrition.
 - B. Regular physical activity.
 - C. Health education.
 - D. Periodic health screening.

BACKGROUND / CONTEXT

Childhood Obesity

- Defined as excessive body fat accumulation that adversely affects health.
- Usually assessed using **Body Mass Index (BMI)-for-age** based on WHO growth standards.

Childhood Hypertension

- I. Persistently elevated blood pressure in children.
- II. Often associated with:
 - A. Obesity.
 - B. High salt intake.
 - C. Physical inactivity.
 - D. Family history.
 - E. Chronic medical conditions.

MAJOR GOVERNMENT INITIATIVES

POSHAN Abhiyaan

- I. **Launched:** 2018.
- II. **Ministry:** Ministry of Women and Child Development.
- III. Focuses on:
 - A. Improving nutritional outcomes.
 - B. Behavioural change.
 - C. Growth monitoring.

PM POSHAN Scheme

- I. Provides nutritious cooked meals to school children.
- II. Promotes:
 - A. Balanced nutrition.
 - B. Better health.
 - C. Improved learning outcomes.

Ayushman Bharat – School Health & Wellness Programme (SHWP)

- I. Joint initiative of:
 - A. Ministry of Health & Family Welfare.
 - B. Ministry of Education.
- II. Covers:

- A. Healthy eating.
- B. Physical activity.
- C. Mental health.
- D. Prevention of substance abuse.
- E. Adolescent health.

National Programme for Prevention and Control of Non-Communicable Diseases (NP-NCD)

- I. Focuses on:
 - A. Early diagnosis.
 - B. Lifestyle modification.
 - C. Prevention of hypertension, diabetes, cardiovascular diseases, and cancers.

Fit India Movement

- I. **Launched:** 2019.
- II. Encourages:
 - A. Daily physical activity.
 - B. Fitness awareness.
 - C. Healthy lifestyle practices.

SIGNIFICANCE

Health

- I. Reduces risk of:
 - A. Diabetes.
 - B. Cardiovascular diseases.
 - C. Stroke.
 - D. Kidney diseases.
- II. Promotes lifelong healthy habits.

Education

- Improves concentration and academic performance.
- Reduces absenteeism.

Economic

- Lowers future healthcare costs.
- Enhances productivity by improving long-term health outcomes.

KEY HIGHLIGHTS

- **Lead Ministry:** Ministry of Health & Family Welfare (with support from the Ministry of Women and Child Development and Ministry of Education).
- **Major Programmes:** POSHAN Abhiyaan, PM POSHAN, School Health & Wellness Programme, NP-NCD, Fit India Movement.
- **Target Group:** Children and adolescents.
- **Strategic Importance:** Prevents non-communicable diseases and promotes healthy lifestyles from an early age.
- **Challenges:** Increasing consumption of processed foods, sedentary lifestyles, lack of awareness, and urban lifestyle changes.
- **Way Forward:** Strengthen nutrition education, promote sports and physical activity, regulate unhealthy food environments around schools, expand early screening, and improve parental awareness.

PRELIMS BOOSTER BOX

- **POSHAN Abhiyaan:** Launched in **2018** to improve nutritional outcomes for children, pregnant women, and lactating mothers.
- **PM POSHAN Scheme:** Successor to the **Mid-Day Meal Scheme**, provides nutritious meals to school children.
- **School Health & Wellness Programme (SHWP):** Component of **Ayushman Bharat**, implemented jointly by the **Ministry of Health & Family Welfare** and the **Ministry of Education**.
- **NP-NCD: National Programme for Prevention and Control of Non-Communicable Diseases,** focuses on prevention and control of major NCDs including hypertension and diabetes.
- **Fit India Movement:** Launched in **2019** to encourage physical fitness and healthy lifestyles.
- **BMI (Body Mass Index):** Indicator used to assess body weight relative to height; for



children, BMI is interpreted using **age- and sex-specific growth charts**.

- **WHO Recommendation:** Children and adolescents (5–17 years) should engage in at least **60 minutes of moderate-to-vigorous physical activity daily**.
- **Non-Communicable Diseases (NCDs):** Chronic diseases such as cardiovascular diseases, diabetes, cancers, and chronic respiratory diseases.
- **SDG 2: Zero Hunger.**
- **SDG 3: Good Health and Well-being.**

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. **POSHAN Abhiyaan** was launched in **2018** to improve nutritional outcomes.
2. The **School Health & Wellness Programme (SHWP)** is a component of **Ayushman Bharat**.
3. The **Fit India Movement** was launched in **2019** to promote physical fitness and healthy lifestyles.

Which of the statements given above is/are correct?

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

Answer: (d)

5. INDIA AND ISRAEL CONCLUDE SECOND ROUND OF NEGOTIATIONS FOR PROPOSED FREE TRADE AGREEMENT (FTA)



- I. The **second round of FTA negotiations** covered multiple areas, including:
 - A. Trade in goods.
 - B. Trade in services.
 - C. Investment.
 - D. Rules of origin.
 - E. Customs procedures.
 - F. Sanitary and Phytosanitary (SPS) measures.
 - G. Technical Barriers to Trade (TBT).
 - H. Intellectual Property Rights (IPR).
 - I. Digital trade.
- II. The proposed FTA seeks to:
 - A. Increase bilateral trade.
 - B. Promote investment.
 - C. Diversify supply chains.
 - D. Enhance cooperation in high-technology sectors.
- III. The agreement aligns with India's objective of expanding its network of comprehensive trade agreements under the **Foreign Trade Policy (FTP) 2023**.

BACKGROUND / CONTEXT

India–Israel Relations

- I. **Diplomatic Relations Established: 1992.**
- II. Relations have evolved into a **Strategic Partnership**, covering:
 - A. Defence.
 - B. Agriculture.
 - C. Water management.
 - D. Innovation.
 - E. Cyber security.
 - F. Space.
 - G. Science & Technology.
 - H. Trade and investment.

FREE TRADE AGREEMENT (FTA)

What is an FTA?

A **Free Trade Agreement (FTA)** is an arrangement between two or more countries to reduce or eliminate tariffs and other trade barriers on goods and services while facilitating investment and economic cooperation.

Expected Benefits

- Greater market access.
- Reduction in customs duties.
- Increased exports.
- Enhanced investment flows.
- Stronger supply chain integration.
- Technology collaboration.

INDIA–ISRAEL ECONOMIC COOPERATION

Major Areas

- Information Technology.
- Defence manufacturing.
- Agriculture and irrigation.
- Water conservation.
- Artificial Intelligence.
- Semiconductors.
- Biotechnology.
- Renewable energy.
- Start-up ecosystem.

SIGNIFICANCE

Economic

- Expands export opportunities.
- Encourages foreign direct investment (FDI).
- Promotes technology transfer.

Strategic

- Diversifies India's trade partnerships.
- Strengthens economic resilience.
- Enhances cooperation in critical technologies.

Geopolitical

- Reinforces the India–Israel Strategic Partnership.
- Supports resilient global supply chains.

KEY HIGHLIGHTS

- **Agreement:** Proposed India–Israel Free Trade Agreement (FTA).
- **Current Status:** Second round of negotiations concluded.
- **Lead Ministry (India):** Ministry of Commerce and Industry.
- **Major Negotiation Areas:** Goods, services, investment, customs, SPS, TBT, IPR, and digital trade.
- **Strategic Importance:** Enhances bilateral trade, innovation, investment, and technology collaboration.
- **Challenges:** Sensitive agricultural products, regulatory harmonization, intellectual property issues, and balancing market access.
- **Way Forward:** Conclude negotiations expeditiously, deepen industry participation, strengthen MSME integration, and expand cooperation in emerging technologies and innovation.

PRELIMS BOOSTER BOX

- **India–Israel Diplomatic Relations:** Established in **1992**.
- **Strategic Partnership:** Announced during the Prime Ministerial visit in **2017**.



- **FTA (Free Trade Agreement):** Agreement to reduce or eliminate tariffs and facilitate trade and investment.
- **Rules of Origin (RoO):** Criteria used to determine the national source of a product for preferential tariff treatment.
- **SPS Measures: Sanitary and Phytosanitary Measures** to protect human, animal, and plant health.
- **TBT: Technical Barriers to Trade**—technical regulations, standards, and conformity assessment procedures that may affect trade.
- **Foreign Trade Policy (FTP), 2023:** India's policy framework to promote exports, integrate with global value chains, and facilitate international trade.
- **India's Major Recent Trade Agreements:** UAE (CEPA), Australia (ECTA), and the **India–EFTA Trade and Economic Partnership Agreement (TEPA)**.
- **Key Areas of India–Israel Cooperation:** Defence, agriculture, water technology, cyber security, innovation, space, and start-ups.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. India and Israel established diplomatic relations in **1992**.
2. A **Free Trade Agreement (FTA)** generally aims to reduce or eliminate tariffs and facilitate trade and investment between participating countries.
3. **Sanitary and Phytosanitary (SPS) Measures** relate to protecting human, animal, and plant health in international trade.

Which of the statements given above is/are correct?

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

Answer: (d)

1. START-UP VILLAGE ENTREPRENEURSHIP PROGRAMME (SVEP)



- I. The **Start-up Village Entrepreneurship Programme (SVEP)** is a sub-scheme under the **Deendayal Antyodaya Yojana – National Rural Livelihoods Mission (DAY-NRLM)**.
- II. It aims to:
 - A. Promote rural entrepreneurship.
 - B. Support non-farm livelihoods.
 - C. Generate local employment.
 - D. Strengthen village economies.
- III. The programme provides:
 - A. Enterprise planning support.
 - B. Skill development and capacity building.
 - C. Business counselling.
 - D. Access to credit through SHGs and banks.
 - E. Handholding support through trained **Community Resource Persons – Enterprise Promotion (CRP-EPs)**.
- IV. SVEP particularly encourages entrepreneurship among:
 - A. Women.
 - B. Self-Help Group members.

- C. Rural youth.
- D. Marginalized communities.

BACKGROUND / CONTEXT

Deendayal Antyodaya Yojana – National Rural Livelihoods Mission (DAY-NRLM)

- I. **Launched: 2011** (as NRLM); later renamed **DAY-NRLM** in 2015.
- II. **Ministry:** Ministry of Rural Development.
- III. **Objective:**
 - A. Reduce rural poverty through sustainable livelihood opportunities.
 - B. Promote women-led Self-Help Groups (SHGs).
 - C. Enhance financial inclusion and enterprise development.

START-UP VILLAGE ENTREPRENEURSHIP PROGRAMME (SVEP)

Objectives

- Promote village-level enterprises.
- Reduce migration from rural areas.
- Encourage local value addition.
- Strengthen the rural non-farm economy.
- Improve household incomes.

Key Features

- Enterprise identification and planning.
- Business management training.
- Financial literacy.
- Credit linkage with banks.
- Mentoring by CRP-EPs.
- Market linkage support.
- Digital record-keeping and monitoring.

IMPLEMENTATION MECHANISM

SVEP is implemented through:

- State Rural Livelihood Missions (SRLMs).
- Block-level implementation units.
- Self-Help Groups (SHGs).
- Village Organizations (VOs).
- Cluster Level Federations (CLFs).

- Community Resource Persons – Enterprise Promotion (CRP-EPs).

SIGNIFICANCE

Economic

- Promotes rural micro-enterprises.
- Generates local employment.
- Diversifies income sources.

Social

- Empowers women entrepreneurs.
- Reduces rural poverty.
- Encourages community-led development.

Institutional

- Strengthens the SHG ecosystem.
- Improves financial inclusion.
- Enhances entrepreneurial capacity in villages.

KEY HIGHLIGHTS

- **Programme:** Start-up Village Entrepreneurship Programme (SVEP).
- **Parent Scheme:** Deendayal Antyodaya Yojana – National Rural Livelihoods Mission (DAY-NRLM).
- **Lead Ministry:** Ministry of Rural Development.
- **Target Beneficiaries:** SHG members, rural youth, women entrepreneurs, and rural households.
- **Support Provided:** Enterprise development, training, mentoring, credit linkage, and market access.
- **Strategic Importance:** Promotes self-employment, rural industrialization, and inclusive economic growth.
- **Challenges:** Limited market access, access to finance, digital literacy gaps, and sustainability of rural enterprises.
- **Way Forward:** Expand digital marketing platforms, strengthen value chains, improve credit access, integrate with the **One District One Product (ODOP)** initiative, and provide continuous business mentoring.

PRELIMS BOOSTER BOX

- **SVEP: Start-up Village Entrepreneurship Programme**, a sub-scheme under **DAY-NRLM**.
- **DAY-NRLM: Deendayal Antyodaya Yojana – National Rural Livelihoods Mission**, implemented by the **Ministry of Rural Development**.
- **Launch of NRLM: 2011**; renamed **DAY-NRLM** in 2015.
- **Primary Objective:** Promote sustainable livelihoods and reduce rural poverty through women-led SHGs.
- **SHG (Self-Help Group):** Informal group, usually comprising 10–20 members, primarily women, engaged in savings, credit, and livelihood activities.
- **CRP-EP: Community Resource Person – Enterprise Promotion**, provides business guidance and mentoring to rural entrepreneurs.
- **Village Organization (VO):** Federation of multiple SHGs at the village level.
- **Cluster Level Federation (CLF):** Higher-level federation of Village Organizations that supports governance, livelihoods, and enterprise development.
- **Non-Farm Rural Enterprise:** Economic activities outside agriculture, such as retail shops, food processing, tailoring, handicrafts, repair services, and rural manufacturing.
- **SDG 1: No Poverty; SDG 8: Decent Work and Economic Growth.**

PadhAI-GENERATED UPSC MCQ

Consider the following statements regarding the Start-up Village Entrepreneurship Programme (SVEP):

1. It is a sub-scheme of the **Deendayal Antyodaya Yojana – National Rural Livelihoods Mission (DAY-NRLM)**.
2. It is implemented by the **Ministry of Rural Development**.

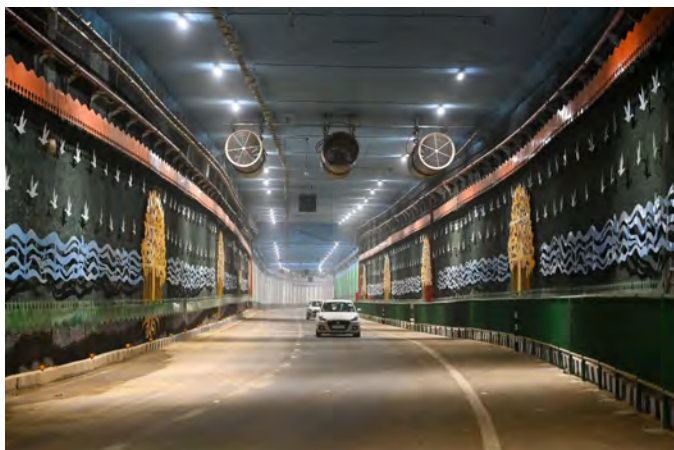
3. It aims to promote rural entrepreneurship by supporting Self-Help Group (SHG) members and other rural entrepreneurs.

Which of the statements given above is/are correct?

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

Answer: (d)

2. DELHI'S UNDERGROUND LINK TO THE FUTURE: THE TUNNEL SET TO REWIRE THE CAPITAL'S CONNECTIVITY



- I. The upcoming tunnel will:
 - A. Improve seamless connectivity across Delhi.
 - B. Reduce traffic congestion on major arterial roads.
 - C. Cut travel time and fuel consumption.
 - D. Improve logistics efficiency.
 - E. Reduce vehicular emissions.
- II. The project is expected to integrate with:
 - A. National Highways.
 - B. Urban Expressways.
 - C. Ring Road corridors.
 - D. Other major transport infrastructure in the National Capital Region (NCR).

- III. It is designed with advanced engineering features including:
 - A. Intelligent Traffic Management Systems (ITMS).
 - B. Modern ventilation.
 - C. Fire detection and suppression systems.
 - D. CCTV surveillance.
 - E. Emergency exits and communication systems.

BACKGROUND / CONTEXT

Need for Underground Road Tunnels

Delhi faces:

- High traffic congestion.
- Rapid urbanisation.
- Increasing vehicle ownership.
- Air pollution.
- Limited availability of surface land.

Underground tunnels help:

- Increase transport capacity without major land acquisition.
- Preserve urban spaces.
- Improve traffic flow.
- Enhance road safety.

KEY FEATURES OF MODERN ROAD TUNNELS

- Multi-lane carriageways.
- Intelligent Traffic Management Systems (ITMS).
- Automated incident detection.
- Ventilation systems.
- Fire-resistant infrastructure.
- Emergency evacuation routes.
- Real-time traffic monitoring.
- Energy-efficient lighting.

RELATED GOVERNMENT INITIATIVES

PM Gati Shakti National Master Plan

- I. **Launched:** 2021.
- II. **Objective:**
 - A. Integrated infrastructure planning.

- B. Multi-modal connectivity.
- C. Faster project implementation.
- D. Reduced logistics costs.

Bharatmala Pariyojana

- I. National highway development programme.
- II. Focuses on:
 - A. Economic corridors.
 - B. Ring roads.
 - C. Border roads.
 - D. Expressways.
 - E. Urban connectivity.

National Infrastructure Pipeline (NIP)

- Long-term infrastructure investment programme covering transport, energy, urban development, and digital infrastructure.

SIGNIFICANCE

Urban Mobility

- Faster travel.
- Reduced congestion.
- Better last-mile connectivity.

Economic

- Lower logistics costs.
- Improved business efficiency.
- Enhanced investment attractiveness.

Environmental

- Reduced vehicle idling.
- Lower fuel consumption.
- Decreased greenhouse gas emissions.

Social

- Improved road safety.
- Better commuting experience.
- Enhanced quality of life.

KEY HIGHLIGHTS

- **Sector:** Urban Transport Infrastructure.
- **Location:** National Capital Territory (NCT) of Delhi.

- **Objective:** Improve connectivity through underground transport infrastructure.
- **Supporting Initiative:** PM Gati Shakti National Master Plan.
- **Strategic Importance:** Urban mobility, logistics efficiency, and sustainable infrastructure development.
- **Challenges:** High construction costs, utility relocation, traffic management during construction, groundwater management, and long-term maintenance.
- **Way Forward:** Integrate tunnel infrastructure with public transport, adopt smart traffic management systems, ensure regular safety audits, and promote multimodal urban mobility.

PRELIMS BOOSTER BOX

- **PM Gati Shakti National Master Plan:** Launched in **2021** to provide integrated planning for multimodal infrastructure development.
- **Bharatmala Pariyojana:** Flagship highway development programme aimed at improving freight and passenger movement through economic corridors, expressways, and ring roads.
- **National Infrastructure Pipeline (NIP):** Infrastructure investment programme launched in **2019** to support projects across sectors.
- **National Highways Authority of India (NHAI):** Statutory authority under the **Ministry of Road Transport and Highways (MoRTH)** responsible for the development and maintenance of National Highways.
- **Intelligent Traffic Management System (ITMS):** Uses digital technologies such as CCTV, sensors, variable message signs, and automated traffic control for efficient traffic management.
- **Transit-Oriented Development (TOD):** Urban planning approach that promotes compact,



mixed-use development around public transport corridors.

- **National Logistics Policy (2022):** Seeks to reduce logistics costs and improve supply chain efficiency through integrated infrastructure and digital systems.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. **PM Gati Shakti National Master Plan** was launched in **2021** to promote integrated multimodal infrastructure planning.
2. **Bharatmala Pariyojana** primarily focuses on the development of national highways, economic corridors, and expressways.
3. The **National Highways Authority of India (NHAI)** functions under the **Ministry of Road Transport and Highways**.

Which of the statements given above is/are correct?

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

Answer: (d)

3. SPUDDING OF FIRST APPRAISAL WELL, MN-DWN18-1-HD, BEGINS IN MAHANADI OFFSHORE BASIN



- I. ONGC has begun drilling the **first appraisal well (MN-DWN18-1-HD)** in the **deepwater Mahanadi offshore basin**.

- II. The well follows earlier hydrocarbon discoveries and is intended to:
 - A. Estimate the size and quality of the reservoir.
 - B. Assess commercial viability.
 - C. Support future field development planning.
- III. The initiative is expected to:
 - A. Increase domestic oil and gas production.
 - B. Reduce dependence on imported crude oil and natural gas.
 - C. Enhance India's energy security.
- IV. The drilling is part of India's broader effort to unlock the hydrocarbon potential of frontier offshore basins.

BACKGROUND / CONTEXT

What is Spudding?

- **Spudding** refers to the **commencement of drilling** of an oil or gas well.
- It marks the official beginning of drilling operations after all preparatory work, including rig installation and safety checks, has been completed.

What is an Appraisal Well?

An **appraisal well** is drilled **after a discovery** to:

- Estimate the extent of the reservoir.
- Determine hydrocarbon quality.
- Evaluate commercial viability.
- Collect geological and engineering data for field development.

MAHANADI OFFSHORE BASIN

- Located along **India's east coast** in the **Bay of Bengal**, off the coasts of **Odisha and northern Andhra Pradesh**.
- It is one of India's important sedimentary basins with significant **deepwater hydrocarbon potential**.
- The basin contains both shallow-water and deepwater exploration blocks and remains



relatively underexplored compared to the Krishna–Godavari Basin.

IMPORTANCE OF THE PROJECT

Energy Security

- Increases indigenous oil and gas production.
- Reduces dependence on imported hydrocarbons.

Economic Benefits

- Supports economic growth.
- Generates employment in offshore exploration and services.
- Encourages investment in exploration technologies.

Strategic Importance

- Strengthens India's offshore exploration capabilities.
- Supports the objective of **Atmanirbhar Bharat** in the energy sector.

RELATED GOVERNMENT INITIATIVES

Hydrocarbon Exploration and Licensing Policy (HELP)

- Introduced in **2016**.
- Provides a uniform licensing framework for exploration and production.
- Replaced the **New Exploration Licensing Policy (NELP)**.

Open Acreage Licensing Programme (OALP)

- Allows companies to select exploration blocks of interest throughout the year.
- Encourages continuous exploration and investment.

Policy Reforms

- Liberalization of exploration in previously restricted offshore areas.
- Promotion of advanced seismic surveys and deepwater exploration.

KEY HIGHLIGHTS

- **Operator:** Oil and Natural Gas Corporation (ONGC).
- **Well:** MN-DWN18-1-HD (Appraisal Well).
- **Location:** Deepwater Mahanadi Offshore Basin, Bay of Bengal.
- **Purpose:** Evaluate discovered hydrocarbon reserves and determine commercial viability.
- **Strategic Importance:** Enhances domestic energy production and strengthens India's energy security.
- **Challenges:** Deepwater drilling complexity, high exploration costs, technological requirements, and environmental safeguards.
- **Way Forward:** Accelerate appraisal activities, adopt advanced offshore technologies, strengthen seismic imaging, encourage private participation, and expedite development of commercially viable discoveries.

PRELIMS BOOSTER BOX

- **Spudding:** The commencement of drilling of an oil or gas well.
- **Appraisal Well:** Drilled after a discovery to assess the size, quality, and commercial viability of a hydrocarbon reservoir.
- **Exploration Well (Wildcat Well):** First well drilled to search for hydrocarbons in a prospective area.
- **Development Well:** Drilled after commercial viability is established to produce hydrocarbons.
- **ONGC: Oil and Natural Gas Corporation Limited**, India's largest crude oil and natural gas producer under the **Ministry of Petroleum and Natural Gas**.
- **Mahanadi Basin:** Sedimentary basin located along the east coast of India with both shallow and deepwater hydrocarbon potential.
- **HELP: Hydrocarbon Exploration and Licensing Policy (2016)**, providing a unified licensing regime for oil and gas exploration.

- **OALP: Open Acreage Licensing Programme**, allowing companies to identify and bid for exploration blocks.
- **Sedimentary Basin:** A geological depression where sediments accumulate over millions of years and may contain petroleum and natural gas.
- **Deepwater Exploration:** Exploration conducted in offshore waters generally deeper than **400 metres**, requiring advanced drilling technologies.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

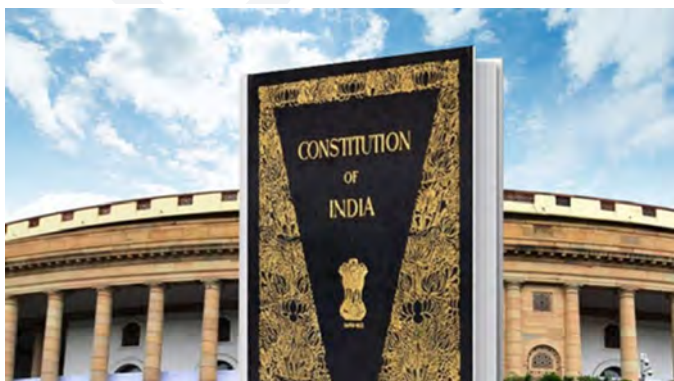
1. **Spudding** refers to the commencement of drilling of an oil or gas well.
2. An **appraisal well** is drilled after a hydrocarbon discovery to assess its commercial viability.
3. The **Hydrocarbon Exploration and Licensing Policy (HELP)** replaced the **New Exploration Licensing Policy (NELP)**.

Which of the statements given above is/are correct?

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

Answer: (d)

4. EIGHT CONSTITUTION AMENDMENTS ENACTED IN THE LAST TWELVE YEARS, GOVERNMENT INFORMS PARLIAMENT



- I. Constitutional amendments are made under **Article 368** of the Constitution to address evolving governance needs.
- II. During the last twelve years, Parliament has enacted **eight Constitutional Amendment Acts**, covering:
 - A. Introduction of the **Goods and Services Tax (GST)**.
 - B. Constitutional status for the **National Commission for Backward Classes (NCBC)**.
 - C. **Economically Weaker Sections (EWS)** reservation.
 - D. Extension of reservation for **SCs and STs** in the Lok Sabha and State Legislative Assemblies.
 - E. Reservation for **women in legislatures**.
 - F. Reforms relating to **cooperative societies**.

BACKGROUND / CONTEXT

Constitutional Amendment

A Constitutional Amendment is a formal change to the Constitution carried out under **Article 368**.

Procedure under Article 368

- I. Bill can be introduced in either House of Parliament.
- II. Must be passed by:
 - A. A **majority of the total membership** of each House; and
 - B. A **two-thirds majority of members present and voting**.
- III. Certain amendments additionally require ratification by **at least one-half of the State Legislatures**.
- IV. The Bill becomes law after receiving the **President's assent**.

MAJOR CONSTITUTIONAL AMENDMENTS (LAST TWELVE YEARS)

100th Constitutional Amendment Act, 2015

- Implemented the **India–Bangladesh Land Boundary Agreement (LBA)**.
- Facilitated the exchange of enclaves between India and Bangladesh.

101st Constitutional Amendment Act, 2016

- Introduced the **Goods and Services Tax (GST)**.
- Created a unified indirect tax system.
- Established the **GST Council** under **Article 279A**.

102nd Constitutional Amendment Act, 2018

- Granted constitutional status to the **National Commission for Backward Classes (NCBC)**.
- Inserted **Articles 338B** and **342A**.

103rd Constitutional Amendment Act, 2019

- Introduced **10% reservation** for **Economically Weaker Sections (EWS)**.
- Inserted **Articles 15(6)** and **16(6)**.

104th Constitutional Amendment Act, 2020

- Extended reservation for **Scheduled Castes (SCs)** and **Scheduled Tribes (STs)** in the Lok Sabha and State Legislative Assemblies until **2030**.
- Discontinued the reservation of seats for the Anglo-Indian community in legislatures.

105th Constitutional Amendment Act, 2021

- Restored the power of States to identify and notify **Socially and Educationally Backward Classes (SEBCs)** for their own purposes.

106th Constitutional Amendment Act, 2023

- Popularly known as the **Nari Shakti Vandan Adhiniyam**.
- Provides **33% reservation for women** in the Lok Sabha, State Legislative Assemblies, and the Legislative Assembly of the National Capital Territory of Delhi.
- The reservation will come into effect after the **next Census** and subsequent **delimitation exercise**.

111th Constitutional Amendment Act, 2025

- Amended **Part IXB** relating to cooperative societies.
- Strengthened governance and democratic functioning of cooperative institutions while respecting the federal distribution of powers.

SIGNIFICANCE

Governance

- Strengthens constitutional institutions.
- Improves administrative efficiency.

Social Justice

- Expands affirmative action.
- Enhances representation of marginalized communities and women.

Economic Reforms

- Facilitates tax reforms.
- Improves the business environment through GST.

Federalism

- Clarifies the role of States in identifying backward classes.
- Strengthens cooperative federalism.

KEY HIGHLIGHTS

- **Constitutional Provision:** Article 368.
- **Number of Amendments:** Eight during the last twelve years.
- **Major Themes:** Tax reform, social justice, women's empowerment, cooperative societies, and federalism.
- **Strategic Importance:** Keeps the Constitution responsive to changing socio-economic and governance needs.
- **Challenges:** Ensuring effective implementation, maintaining constitutional balance, and preserving the federal structure.

PRELIMS BOOSTER BOX

- **Article 368:** Deals with the **procedure for amendment of the Constitution**.



- **101st Amendment (2016):** Introduced the **Goods and Services Tax (GST)**.
- **GST Council:** Constitutional body established under **Article 279A**.
- **102nd Amendment (2018):** Gave constitutional status to the **National Commission for Backward Classes (NCBC)**.
- **103rd Amendment (2019):** Introduced **10% EWS reservation** through **Articles 15(6) and 16(6)**.
- **104th Amendment (2020):** Extended reservation for **SCs and STs** in legislatures; ended the nomination of **Anglo-Indian** members to the Lok Sabha and State Assemblies.
- **105th Amendment (2021):** Restored States' power to identify **SEBCs**.
- **106th Amendment (2023):** **Nari Shakti Vandan Adhiniyam** providing **33% reservation for women** in the Lok Sabha and State Legislative Assemblies.
- **Part IXB:** Deals with **Cooperative Societies**.
- **Special Majority:** Required for most Constitutional Amendment Bills under **Article 368**.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **101st Constitutional Amendment Act** introduced the **Goods and Services Tax (GST)**.
2. The **103rd Constitutional Amendment Act** introduced **10% reservation for Economically Weaker Sections (EWS)**.
3. The **106th Constitutional Amendment Act** provides for **33% reservation for women** in the Lok Sabha and State Legislative Assemblies.

Which of the statements given above is/are correct?

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

Answer: (d)

5. "ANCIENT BUDDHIST SITE OF SARNATH" INSCRIBED IN THE UNESCO WORLD HERITAGE LIST



- **Sarnath**, located near **Varanasi in Uttar Pradesh**, is one of the **four principal Buddhist pilgrimage sites** associated with the life of **Gautama Buddha**.



- It is the place where **Lord Buddha delivered his first sermon (Dhammacakkappavattana Sutta)** after attaining enlightenment at Bodh Gaya, thereby **setting in motion the 'Dharmachakra' (Wheel of Dharma)**.
- The site contains important archaeological remains dating from the **Mauryan, Kushan, Gupta, and later periods**, reflecting the continuous evolution of Buddhist art, architecture, and monastic life.
- UNESCO recognition highlights Sarnath's global significance as a centre of Buddhist learning, art, and spiritual tradition.

BACKGROUND / CONTEXT

About Sarnath

- Location:** Near **Varanasi**, Uttar Pradesh.
- Ancient name: **Isipatana (Rishipattana)** and **Mrigadava (Deer Park)**.
- It is one of the **Four Great Buddhist Pilgrimage Sites**, along with:
 - Lumbini (Birth).
 - Bodh Gaya (Enlightenment).
 - Sarnath (First Sermon).
 - Kushinagar (Mahaparinirvana).

MAJOR MONUMENTS AT SARNATH

Dhamek Stupa

- Built to commemorate Buddha's **First Sermon**.
- Present structure dates mainly to the **Gupta Period**, with earlier Mauryan foundations.

Ashokan Pillar

- Erected by **Emperor Ashoka** in the **3rd century BCE**.
- The **Lion Capital of Ashoka**, discovered here, has been adopted as the **National Emblem of India**.

Dharmarajika Stupa

- Originally constructed by Ashoka.
- One of the earliest Buddhist stupas in India.

Mulagandha Kuti Vihara

- Modern Buddhist temple built by the **Mahabodhi Society**.
- Houses murals depicting the life of Buddha.

Archaeological Museum, Sarnath

- India's **oldest site museum**.
- Preserves the original **Lion Capital of Ashoka** and numerous Buddhist sculptures.

UNESCO WORLD HERITAGE LIST

Objective

- Protect sites of **Outstanding Universal Value (OUV)**.
- Promote conservation and international cooperation.

World Heritage Convention

- Adopted by **UNESCO in 1972**.
- India became a **State Party in 1977**.

SIGNIFICANCE

Religious

- Sacred centre for Buddhists worldwide.
- Symbolizes the beginning of the spread of Buddhism.

Historical

- Flourished under the Mauryas, Kushans, and Guptas.
- Centre of Buddhist scholarship and monastic education.

Cultural

- Home to outstanding Buddhist art and architecture.
- Strengthens India's Buddhist heritage and cultural diplomacy.

Economic

- Boosts heritage tourism.
- Generates employment and local economic development.

KEY HIGHLIGHTS

- **Site:** Ancient Buddhist Site of Sarnath.
- **State:** Uttar Pradesh.
- **UNESCO Recognition:** Inscribed on the UNESCO World Heritage List.
- **Historical Importance:** Site of Buddha's First Sermon.
- **Associated Emperor:** Ashoka.
- **National Importance:** Lion Capital of Ashoka from Sarnath is India's National Emblem.
- **Strategic Importance:** Strengthens Buddhist tourism, heritage conservation, and India's cultural diplomacy.
- **Challenges:** Visitor management, urban encroachment, environmental degradation, and conservation of ancient structures.
- **Way Forward:** Strengthen conservation efforts, promote sustainable tourism, enhance digital documentation, and improve visitor interpretation facilities.

PRELIMS BOOSTER BOX

- **Sarnath:** Place where **Gautama Buddha delivered his First Sermon** after attaining enlightenment.
- **Ancient Names:** **Isipatana (Rishipattana)** and **Mrigadava (Deer Park)**.
- **Four Major Buddhist Pilgrimage Sites:** **Lumbini, Bodh Gaya, Sarnath, and Kushinagar.**
- **Dhammacakkappavattana Sutta:** Buddha's **First Sermon**, explaining the **Four Noble Truths** and the **Noble Eightfold Path**.
- **Ashokan Pillar:** Built during the reign of **Emperor Ashoka (3rd century BCE)**.
- **Lion Capital of Ashoka:** Adopted as the **National Emblem of India** on **26 January 1950**.
- **National Motto:** "**Satyameva Jayate**", taken from the **Mundaka Upanishad**, appears below the Lion Capital.
- **UNESCO World Heritage Convention:** Adopted in **1972**; **India became a State Party in 1977**.

- **Archaeological Survey of India (ASI):** Nodal agency responsible for the protection and conservation of centrally protected monuments in India.
- **Outstanding Universal Value (OUV):** The criterion used by UNESCO to determine whether a cultural or natural site deserves inscription on the World Heritage List.

PadhAI-GENERATED UPSC MCQ

Consider the following statements regarding Sarnath:

1. Sarnath is the place where **Gautama Buddha delivered his First Sermon**.
2. The **Lion Capital of Ashoka**, adopted as the National Emblem of India, was discovered at Sarnath.
3. The **UNESCO World Heritage Convention** was adopted in **1972**.

Which of the statements given above is/are correct?

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

Answer: (d)

1. UNION MINISTER SHRI PRALHAD JOSHI TAKES CHARGE OF THE UNION MINISTRY OF EDUCATION



- I. Shri **Pralhad Joshi** has taken charge as the **Union Minister of Education**.
- II. As the head of the Ministry, he will oversee:
 - A. Implementation of the **National Education Policy (NEP), 2020**.
 - B. School education reforms.
 - C. Higher education development.
 - D. Digital learning initiatives.
 - E. Research and innovation.
 - F. Skill development and internationalization of education.
- III. The Ministry continues to focus on:
 - A. Universal access to quality education.
 - B. Foundational literacy and numeracy.
 - C. Technology-enabled learning.
 - D. Multidisciplinary education.
 - E. Employability and innovation.

BACKGROUND / CONTEXT

Ministry of Education

- I. Originally known as the **Ministry of Human Resource Development (MHRD)**.
- II. Renamed as the **Ministry of Education** in **2020** in line with the **National Education Policy (NEP), 2020**.
- III. Responsible for:

- A. School Education.
- B. Higher Education.
- C. Educational research.
- D. Teacher education.
- E. Digital education.
- F. Educational policy formulation.

Departments under the Ministry

- **Department of School Education and Literacy**
- **Department of Higher Education**

KEY PRIORITIES OF THE MINISTRY

National Education Policy (NEP), 2020

Focus areas include:

- Universal access to education.
- Foundational Literacy and Numeracy (FLN).
- Holistic and multidisciplinary learning.
- Flexible curriculum.
- Vocational education.
- Digital learning.
- Research and innovation.

Foundational Literacy and Numeracy (FLN)

- Implemented through **NIPUN Bharat Mission**.
- Aims to ensure every child achieves basic literacy and numeracy by the end of Grade 3.

Digital Education

Major initiatives include:

- **DIKSHA Portal**
- **PM eVIDYA**
- **SWAYAM**
- **SWAYAM PRABHA**

Higher Education Reforms

- Multidisciplinary universities.
- Academic Bank of Credits (ABC).
- National Credit Framework (NCrF).
- Promotion of research through the **Anusandhan National Research Foundation (ANRF)**.

SIGNIFICANCE

Educational

- Improves access, quality, and equity in education.
- Enhances learning outcomes.

Economic

- Develops a skilled workforce.
- Supports innovation-driven growth.

Social

- Promotes inclusive education.
- Reduces regional and gender disparities.

Strategic

- Builds human capital for **Viksit Bharat 2047**.
- Strengthens India's global competitiveness in education and research.

KEY HIGHLIGHTS

- **Union Minister:** Shri Pralhad Joshi.
- **Ministry:** Ministry of Education.
- **Major Focus:** Implementation of NEP 2020 and strengthening school and higher education.
- **Key Areas:** Foundational literacy, digital education, multidisciplinary learning, research, innovation, and skill development.
- **Strategic Importance:** Human capital development, knowledge economy, and inclusive growth.
- **Challenges:** Learning gaps, teacher shortages, digital divide, and improving the quality of higher education.
- **Way Forward:** Accelerate NEP implementation, strengthen teacher training, expand digital infrastructure, improve research funding, and enhance industry-academia collaboration.

PRELIMS BOOSTER BOX

- **Ministry of Education:** Renamed from the **Ministry of Human Resource Development (MHRD)** in 2020.
- **National Education Policy (NEP), 2020:** India's first education policy of the 21st century,

replacing the **National Policy on Education, 1986**.

- **5+3+3+4 Structure:** New curricular and pedagogical framework introduced under NEP 2020.
- **NIPUN Bharat Mission:** Launched in 2021 to achieve universal **Foundational Literacy and Numeracy (FLN)** by Grade 3.
- **DIKSHA:** National digital platform for school education.
- **SWAYAM:** Online platform offering free higher education and skill courses.
- **Academic Bank of Credits (ABC):** Digital repository enabling students to accumulate and transfer academic credits.
- **National Credit Framework (NCrF):** Integrates academic, vocational, and experiential learning.
- **Anusandhan National Research Foundation (ANRF):** Established under the **ANRF Act, 2023** to promote research and innovation.
- **Article 21A:** Provides the **Right to Education** for children aged **6–14 years**.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **Ministry of Human Resource Development (MHRD)** was renamed as the **Ministry of Education** in 2020.
2. The **National Education Policy (NEP), 2020** introduced the **5+3+3+4** curricular structure.
3. **NIPUN Bharat Mission** aims to achieve **Foundational Literacy and Numeracy (FLN)** for all children by the end of Grade 3.

Which of the statements given above is/are correct?

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

Answer: (d)

2. PRIME MINISTER ANNOUNCES CONSTITUTION OF HIGH-POWERED TASK FORCE ON EXAMINATION REFORMS



- I. The High-Powered Task Force has been constituted to:
 - A. Review the existing examination ecosystem.
 - B. Strengthen examination security.
 - C. Prevent paper leaks and malpractices.
 - D. Recommend technological and institutional reforms.
 - E. Improve governance of public examinations.
- II. The recommendations are expected to cover:
 - A. Secure digital examination systems.
 - B. Data protection.
 - C. Standard Operating Procedures (SOPs).
 - D. Capacity building.
 - E. Stronger legal and administrative safeguards.

BACKGROUND / CONTEXT

Need for Examination Reforms

India conducts numerous large-scale examinations for:

- Higher education admissions.

- Recruitment to government services.
- Professional courses.
- Scholarship programmes.

Challenges include:

- Question paper leaks.
- Cybersecurity threats.
- Identity fraud.
- Impersonation.
- Logistical complexities.
- Ensuring fairness and transparency.

OBJECTIVES OF THE TASK FORCE

- Enhance the credibility of examinations.
- Strengthen digital infrastructure.
- Improve cybersecurity.
- Develop secure question paper management systems.
- Standardize examination protocols.
- Recommend institutional reforms.
- Promote accountability.

LIKELY AREAS OF REFORM

Technology

- Encryption of question papers.
- AI-enabled monitoring.
- Biometric verification.
- Secure digital platforms.
- Cybersecurity audits.

Governance

- Clear accountability mechanisms.
- Standard Operating Procedures.
- Better coordination among agencies.

Legal Framework

- Strong deterrence against malpractice.
- Improved enforcement mechanisms.
- Protection of examination integrity.

Capacity Building

- Training of examination officials.
- Awareness among candidates.

- Crisis management protocols.

RELATED LEGISLATION

Public Examinations (Prevention of Unfair Means) Act, 2024

The Act aims to:

- Prevent unfair practices in public examinations.
- Punish organized paper leak rackets.
- Protect the interests of genuine candidates.
- Improve the credibility of recruitment examinations.

Major Provisions

- I. Criminalizes organized examination fraud.
- II. Prescribes stringent penalties.
- III. Targets organized criminal networks.
- IV. Covers recruitment examinations conducted by:
 - A. UPSC.
 - B. SSC.
 - C. NTA.
 - D. RRBs.
 - E. IBPS.
 - F. Other notified public authorities.

SIGNIFICANCE

Educational

- Restores public trust.
- Ensures fair competition.

Administrative

- Improves examination governance.
- Enhances institutional accountability.

Technological

- Encourages secure digital examination systems.
- Strengthens cyber resilience.

Economic

- Protects merit-based recruitment.
- Reduces costs associated with examination irregularities.

KEY HIGHLIGHTS

- **Initiative:** High-Powered Task Force on Examination Reforms.
- **Objective:** Strengthen transparency, security, and integrity of public examinations.
- **Focus Areas:** Technology, cybersecurity, governance, legal reforms, and capacity building.
- **Supporting Law:** Public Examinations (Prevention of Unfair Means) Act, 2024.
- **Strategic Importance:** Merit-based recruitment, educational credibility, and public confidence.
- **Challenges:** Cyber threats, large-scale logistics, coordination among agencies, and evolving examination fraud techniques.
- **Way Forward:** Adopt AI-enabled monitoring, strengthen digital infrastructure, implement robust cybersecurity protocols, and ensure periodic review of examination systems.

PRELIMS BOOSTER BOX

- **Public Examinations (Prevention of Unfair Means) Act, 2024:** Enacted to prevent unfair practices in public examinations and punish organized cheating and paper leaks.
- **Public Examinations Covered:** Includes examinations conducted by agencies such as **UPSC, SSC, NTA, RRBs, IBPS**, and other notified authorities.
- **National Testing Agency (NTA):** Autonomous organization under the **Ministry of Education** responsible for conducting several national-level entrance examinations.
- **UPSC:** Constitutional body established under **Articles 315–323** of the Constitution.
- **Biometric Authentication:** Used to verify the identity of candidates and prevent impersonation.
- **Encryption:** Converts information into a secure format to prevent unauthorized access, especially for digital question papers.

- **Cybersecurity Audit:** Systematic evaluation of digital infrastructure to identify and mitigate security vulnerabilities.
- **Standard Operating Procedure (SOP):** Documented set of instructions to ensure consistency and security in examination processes.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **Public Examinations (Prevention of Unfair Means) Act, 2024** aims to curb organized malpractice in public examinations.
2. The **National Testing Agency (NTA)** functions under the **Ministry of Education**.
3. The **Union Public Service Commission (UPSC)** is a constitutional body established under **Articles 315–323** of the Constitution.

Which of the statements given above is/are correct?

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

Answer: (d)

3. AS MONSOON ARRIVES, RAJNANDGAON IS READY TO #CatchTheRain THROUGH MISSION JAL RAKSHA



- I. **Mission Jal Raksha** aims to maximize rainwater conservation during the monsoon through:

- A. Construction and restoration of water harvesting structures.
- B. Renovation of ponds and tanks.
- C. Check dams and percolation structures.
- D. Groundwater recharge.
- E. Public awareness and community participation.

- II. The campaign supports:

- A. Sustainable water management.
- B. Agricultural productivity.
- C. Climate adaptation.
- D. Long-term water security.

- III. The initiative complements the national **Jal Shakti Abhiyan: Catch the Rain** campaign.

BACKGROUND / CONTEXT

Catch the Rain Campaign

- I. Launched by the **Ministry of Jal Shakti**.
- II. Theme:
 - A. **"Catch the Rain, Where It Falls, When It Falls."**
- III. Objective:
 - A. Promote rainwater harvesting before and during the monsoon.
 - B. Improve water conservation through community participation.
 - C. Enhance groundwater recharge.

MISSION JAL RAKSHA

Objectives

- Conserve every drop of rainwater.
- Increase groundwater recharge.
- Restore traditional water bodies.
- Improve irrigation availability.
- Strengthen climate resilience.
- Encourage people's participation in water conservation.

Major Activities

- I. Desilting ponds and lakes.

- II. Construction of:
 - A. Check dams.
 - B. Farm ponds.
 - C. Percolation tanks.
 - D. Recharge pits.
 - E. Contour trenches.
- III. Restoration of traditional water harvesting systems.
- IV. Plantation activities to improve watershed health.
- V. Community awareness campaigns.

RELATED GOVERNMENT INITIATIVES

Jal Shakti Abhiyan

- I. Nationwide water conservation campaign.
- II. Focus areas:
 - A. Rainwater harvesting.
 - B. Watershed development.
 - C. Renovation of water bodies.
 - D. Efficient water use.

Atal Bhujal Yojana (Atal Jal)

- Community-led groundwater management programme.
- Focuses on sustainable groundwater use in water-stressed areas.

Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)

- I. Promotes:
 - A. Irrigation efficiency.
 - B. Water-use efficiency.
 - C. "Per Drop More Crop."

SIGNIFICANCE

Water Security

- Improves groundwater availability.
- Enhances drought resilience.

Agriculture

- Supports irrigation.
- Improves crop productivity.

Environment

- Restores ecosystems.
- Reduces soil erosion.
- Improves watershed health.

Climate Change

- Strengthens adaptation to erratic rainfall.
- Enhances resilience against water scarcity.

KEY HIGHLIGHTS

- **District:** Rajnandgaon, Chhattisgarh.
- **Campaign:** Mission Jal Raksha under the **#CatchTheRain** initiative.
- **Lead Ministry (National Campaign):** Ministry of Jal Shakti.
- **Major Focus:** Rainwater harvesting, groundwater recharge, and restoration of water bodies.
- **Strategic Importance:** Water security, climate resilience, sustainable agriculture, and community participation.
- **Challenges:** Rapid urbanization, groundwater depletion, climate variability, and maintenance of water conservation structures.
- **Way Forward:** Strengthen local water governance, integrate GIS-based monitoring, encourage community ownership, expand watershed management, and promote efficient water-use technologies.

PRELIMS BOOSTER BOX

- **Catch the Rain Campaign:** National water conservation campaign launched by the **Ministry of Jal Shakti**.
- **Theme:** "Catch the Rain, Where It Falls, When It Falls."
- **Jal Shakti Abhiyan:** Focuses on rainwater harvesting, watershed development, groundwater recharge, and restoration of water bodies.
- **Atal Bhujal Yojana (Atal Jal):** World Bank-assisted programme for sustainable



groundwater management through community participation.

- **Pradhan Mantri Krishi Sinchayee Yojana (PMKSY):** Aims to improve irrigation coverage and water-use efficiency.
- **Watershed Management:** Integrated management of land and water resources within a drainage basin to conserve soil and water.
- **Groundwater Recharge:** Process by which rainwater infiltrates the ground and replenishes aquifers.
- **Aquifer:** Underground layer of permeable rock or sediment that stores and transmits groundwater.
- **SDG 6: Clean Water and Sanitation.**
- **SDG 13: Climate Action.**

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **Catch the Rain** campaign is implemented by the **Ministry of Jal Shakti**.
2. The theme of the campaign is "**Catch the Rain, Where It Falls, When It Falls.**"
3. **Atal Bhujal Yojana** focuses on sustainable groundwater management through community participation.

Which of the statements given above is/are correct?

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

Answer: (d)

4. LOKAYAN 26 – INDIAN NAVAL SHIP SUDARSHINI DEPARTS BOSTON, USA



- I. **LOKAYAN 26** is an international deployment of **INS Sudarshini**, the Indian Navy's sail training ship.
- II. During its visit to Boston, the ship participated in:
 - A. Naval diplomacy engagements.
 - B. Cultural exchange programmes.
 - C. Professional interactions with foreign naval personnel.
 - D. Community outreach with the Indian diaspora.
- III. The deployment highlights India's commitment to:
 - A. Rules-based maritime order.
 - B. Freedom of navigation.
 - C. International maritime cooperation.
 - D. Indo-Pacific engagement.

BACKGROUND / CONTEXT

INS Sudarshini

- **Type:** Sail Training Ship (Three-masted Barque).
- **Commissioned:** 2012.
- Built by **Goa Shipyard Limited (GSL)**.
- Named after '**Sudarshini**', meaning "beautiful vision."

Primary Roles

- I. Training naval cadets in:
 - A. Seamanship.
 - B. Navigation.
 - C. Leadership.
 - D. Traditional sailing skills.
- II. Representing India during:
 - A. International maritime events.
 - B. Goodwill visits.
 - C. Diplomatic missions.
 - D. Cultural exchanges.

ABOUT LOKAYAN 26

Objectives

- Promote India's maritime heritage.
- Strengthen bilateral naval relations.
- Enhance defence diplomacy.
- Foster cultural exchanges.
- Increase awareness of India's vision for a secure and inclusive Indo-Pacific.

Key Activities

- Port visits.
- Joint naval interactions.
- Ship visits by the public.
- Cultural performances.
- Professional exchanges.
- Interaction with Indian diaspora.

MARITIME DIPLOMACY

India uses naval deployments to:

- Build trust among partner nations.

- Enhance interoperability.
- Promote regional stability.
- Support humanitarian cooperation.
- Strengthen strategic partnerships.

These deployments complement India's vision of:

- **SAGAR (Security and Growth for All in the Region).**
- **A Free, Open, Inclusive and Rules-Based Indo-Pacific.**

RELATED INITIATIVES

SAGAR

Security and Growth for All in the Region

- I. Announced in **2015**.
- II. India's maritime vision for:
 - A. Regional cooperation.
 - B. Maritime security.
 - C. Sustainable development.

Indo-Pacific Oceans Initiative (IPOI)

- I. Launched in **2019**.
- II. Promotes:
 - A. Maritime security.
 - B. Disaster risk reduction.
 - C. Sustainable use of marine resources.
 - D. Capacity building.

SIGNIFICANCE

Strategic

- Strengthens India's naval diplomacy.
- Expands India's maritime partnerships.
- Reinforces India's role in the Indo-Pacific.

Diplomatic

- Enhances people-to-people ties.
- Deepens defence cooperation.
- Promotes India's soft power.

Professional

- Provides real-world seamanship training.
- Develops leadership and navigation skills among naval cadets.

KEY HIGHLIGHTS

- **Ship:** INS Sudarshini.
- **Mission:** LOKAYAN 26.
- **Recent Port:** Boston, United States.
- **Lead Organisation:** Indian Navy.
- **Major Focus:** Maritime diplomacy, sail training, international cooperation, and cultural outreach.
- **Strategic Importance:** Supports India's maritime vision, naval diplomacy, and Indo-Pacific engagement.
- **Challenges:** Long-duration deployments, logistics, weather conditions, and coordination across multiple international ports.
- **Way Forward:** Expand goodwill missions, strengthen naval partnerships, increase joint maritime exercises, and promote India's maritime heritage globally.

PRELIMS BOOSTER BOX

- **INS Sudarshini:** Sail Training Ship of the **Indian Navy**, commissioned in **2012**.
- **Builder:** Goa Shipyard Limited (GSL).
- **Type:** **Three-masted Barque** used primarily for sail training and goodwill missions.
- **LOKAYAN:** Indian Navy's overseas sail training and maritime outreach initiative.
- **SAGAR:** **Security and Growth for All in the Region**, India's maritime vision announced in **2015**.
- **Indo-Pacific Oceans Initiative (IPOI):** Launched in **2019** to promote cooperation in maritime security and sustainable use of ocean resources.
- **Blue Economy:** Sustainable use of ocean resources for economic growth while preserving marine ecosystems.
- **UNCLOS (1982):** United Nations Convention on the Law of the Sea, often regarded as the "Constitution of the Oceans."

- **Indian Navy Motto:** "शं नो वरुणः (Sham No Varunah)" – *May the Lord of the Oceans be auspicious unto us.*

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. **INS Sudarshini** is a sail training ship of the Indian Navy.
2. **SAGAR** stands for **Security and Growth for All in the Region**.
3. The **Indo-Pacific Oceans Initiative (IPOI)** was launched in **2019**.

Which of the statements given above is/are correct?

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

Answer: (d)

5. SHRI HARIVANSH DELIVERS VALEDICTORY ADDRESS AT 'PRARAMBH' ORIENTATION WORKSHOP FOR NEWLY-ELECTED RAJYA SABHA MEMBERS



1. **'Prarambh'** is an orientation programme designed to help newly elected Rajya Sabha members understand:
 - A. Parliamentary procedures.
 - B. Rules of debate.

- C. Legislative processes.
 - D. Committee systems.
 - E. Ethical responsibilities of lawmakers.
 - F. Constitutional values and democratic traditions.
- II. Shri Harivansh emphasized:
- A. Constructive dialogue.
 - B. Consensus building.
 - C. Respect for parliamentary traditions.
 - D. The importance of informed participation in legislative work.
- III. Such programmes strengthen parliamentary effectiveness and deepen democratic governance.

BACKGROUND / CONTEXT

Rajya Sabha

- Rajya Sabha is the **Council of States**, the **Upper House of Parliament**.
- Established under **Article 79** of the Constitution.
- It represents the **States and Union Territories** in the Union Legislature.

Composition

- I. Maximum strength: **250 members**.
- II. Present strength: **245 members**.
- III. Members are:
 - A. Elected by elected members of State Legislative Assemblies through **proportional representation by the single transferable vote**.
 - B. Nominated by the President for distinguished contributions in literature, science, art, and social service.

ABOUT 'PRARAMBH' ORIENTATION PROGRAMME

Objectives

- I. Familiarize newly elected MPs with:
 - A. Parliamentary procedures.
 - B. Legislative drafting and scrutiny.
 - C. Question Hour and Zero Hour.

- D. Committee functioning.
- E. Constitutional obligations.
- F. Rules of conduct and ethics.

Importance

- Helps members perform legislative duties effectively.
- Enhances the quality of debates.
- Encourages informed policymaking.
- Strengthens democratic institutions.

ROLE OF THE DEPUTY CHAIRMAN OF RAJYA SABHA

Constitutional Provision

- I. **Article 89** provides for:
 - A. Chairman of the Rajya Sabha (Vice-President of India).
 - B. Deputy Chairman of the Rajya Sabha.

Functions

- Presides over the House in the absence of the Chairman.
- Maintains order and decorum.
- Ensures adherence to parliamentary rules and procedures.
- Facilitates smooth conduct of business.

PARLIAMENTARY TRAINING AND CAPACITY BUILDING

Orientation programmes aim to improve:

- Legislative effectiveness.
- Understanding of constitutional principles.
- Committee participation.
- Policy oversight.
- Accountability and transparency.

Such initiatives are essential for strengthening **deliberative democracy**.

SIGNIFICANCE

Democratic

- Strengthens parliamentary democracy.
- Improves informed decision-making.

Institutional

- Enhances legislative efficiency.
- Promotes adherence to parliamentary conventions.

Governance

- Leads to better lawmaking and oversight.
- Improves policy discussions and public accountability.

KEY HIGHLIGHTS

- **Event:** Valedictory session of 'Prarambh'.
- **Speaker:** Shri Harivansh, Deputy Chairman of Rajya Sabha.
- **Purpose:** Orientation of newly elected Rajya Sabha members.
- **Focus Areas:** Parliamentary procedures, ethics, legislative responsibilities, and constitutional values.
- **Strategic Importance:** Strengthening parliamentary capacity and democratic institutions.
- **Way Forward:** Institutionalize continuous legislative training, strengthen committee systems, and encourage evidence-based policymaking.

PRELIMS BOOSTER BOX

- **Article 79:** Establishes the **Parliament of India**, consisting of the President, Rajya Sabha, and Lok Sabha.
- **Rajya Sabha:** The **Council of States** and the Upper House of Parliament.
- **Maximum Strength of Rajya Sabha: 250 members.**
- **Current Strength: 245 members.**
- **Article 80:** Deals with the composition of the Rajya Sabha.
- **Article 89:** Provides for the **Chairman and Deputy Chairman of the Rajya Sabha.**
- **Chairman of Rajya Sabha:** The **Vice-President of India** serves ex officio as Chairman.

- **Deputy Chairman:** Elected by Rajya Sabha members from among themselves.
- **Rajya Sabha is a Permanent House:** It is **not subject to dissolution**; one-third of its members retire every two years.
- **Election Method: Proportional Representation by means of the Single Transferable Vote (STV).**

PadhAI-GENERATED UPSC MCQ

Consider the following statements regarding the Rajya Sabha:

1. Rajya Sabha is a permanent House and is not subject to dissolution.
2. The Vice-President of India is the ex officio Chairman of the Rajya Sabha.
3. Members of the Rajya Sabha are elected through proportional representation by means of the single transferable vote.

Which of the statements given above is/are correct?

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

Answer: (d)

1. INDIA'S FIGHT TO COMBAT HEPATITIS



- I. India bears a significant burden of **viral hepatitis**, particularly **Hepatitis B (HBV)** and **Hepatitis C (HCV)**.
- II. The Government's strategy focuses on:
 - A. Universal access to testing and treatment.
 - B. Free diagnosis and medicines under the **National Viral Hepatitis Control Programme (NVHCP)**.
 - C. Hepatitis B vaccination.
 - D. Safe blood transfusion practices.
 - E. Infection prevention and control.
 - F. Public awareness and early detection.
- III. The goal is to achieve **WHO's target of eliminating viral hepatitis as a public health threat by 2030**.

BACKGROUND / CONTEXT

What is Hepatitis?

Hepatitis is an **inflammation of the liver**, commonly caused by:

- Viral infections.
- Alcohol abuse.
- Autoimmune disorders.
- Certain medicines and toxins.

Major Types of Viral Hepatitis

Type	Mode of Transmission	Chronic Infection
Hepatitis A	Contaminated food and water	No
Hepatitis B	Blood, body fluids, mother-to-child	Yes
Hepatitis C	Bloodborne transmission	Yes
Hepatitis D	Occurs only with Hepatitis B infection	Yes
Hepatitis E	Contaminated water	Usually No

Among these, **Hepatitis B and C** account for the majority of chronic liver disease, liver cirrhosis, and liver cancer.

NATIONAL VIRAL HEPATITIS CONTROL PROGRAMME (NVHCP)

Launched

- **2018**
- Under the **National Health Mission (NHM)**.

Objectives

- Prevent transmission.
- Promote early diagnosis.
- Provide free treatment.
- Reduce illness and deaths due to viral hepatitis.
- Eliminate viral hepatitis as a public health threat by **2030**.

Key Components

- Free screening.
- Free diagnostic services.
- Free antiviral treatment for Hepatitis B and C.
- Surveillance.
- Capacity building of healthcare workers.

- Public awareness campaigns.

OTHER GOVERNMENT INITIATIVES

Universal Immunization Programme (UIP)

- Includes **Hepatitis B vaccine** as part of the routine childhood immunization schedule.

National Blood Transfusion Programme

- I. Ensures:
 - A. Safe blood collection.
 - B. Screening of donated blood.
 - C. Prevention of transfusion-transmitted infections.

Ayushman Bharat

- Strengthens primary healthcare through **Ayushman Arogya Mandirs**.
- Improves access to screening and referral services.

WORLD HEPATITIS DAY

- **Observed: 28 July**
- Organized by the **World Health Organization (WHO)**.
- Commemorates the birth anniversary of **Dr. Baruch Blumberg**, who discovered the Hepatitis B virus and developed its vaccine.

SIGNIFICANCE

Health

- Prevents liver cirrhosis and liver cancer.
- Reduces premature deaths.

Economic

- Lowers long-term healthcare costs.
- Improves workforce productivity.

Social

- Reduces stigma associated with hepatitis.
- Promotes early healthcare seeking.

Public Health

- Supports India's commitment to **Universal Health Coverage (UHC)** and **SDG 3 (Good Health and Well-being)**.

KEY HIGHLIGHTS

- **Programme:** National Viral Hepatitis Control Programme (NVHCP).
- **Launch Year:** 2018.
- **Implementing Ministry:** Ministry of Health and Family Welfare.
- **Target:** Eliminate viral hepatitis as a public health threat by **2030**.
- **Major Focus:** Prevention, vaccination, early diagnosis, free treatment, and awareness.
- **Strategic Importance:** Reduces the burden of chronic liver disease and strengthens India's public health system.
- **Challenges:** Low awareness, delayed diagnosis, stigma, and ensuring treatment adherence.
- **Way Forward:** Expand screening, improve vaccination coverage, strengthen surveillance, integrate hepatitis services into primary healthcare, and enhance community awareness.

PRELIMS BOOSTER BOX

- **Hepatitis:** Inflammation of the liver caused by viruses, alcohol, toxins, or autoimmune disorders.
- **National Viral Hepatitis Control Programme (NVHCP):** Launched in **2018** under the **National Health Mission (NHM)**.
- **WHO Elimination Target:** Eliminate viral hepatitis as a public health threat by **2030**.
- **Hepatitis B Vaccine:** Included under India's **Universal Immunization Programme (UIP)**.
- **World Hepatitis Day: 28 July.**
- **Dr. Baruch Blumberg:** Nobel Laureate who discovered the **Hepatitis B virus** and developed its vaccine.
- **Hepatitis A & E:** Primarily transmitted through contaminated food and water.
- **Hepatitis B, C & D:** Primarily transmitted through infected blood and body fluids.

- **Liver Cirrhosis:** Irreversible scarring of the liver, commonly caused by chronic Hepatitis B and C.
- **SDG 3:** Ensure healthy lives and promote well-being for all at all ages.

PadhAI-GENERATED UPSC MCQ

Consider the following statements regarding viral hepatitis:

1. The **National Viral Hepatitis Control Programme (NVHCP)** was launched in **2018** under the **National Health Mission**.
2. **Hepatitis B vaccine** is included in India's **Universal Immunization Programme**.
3. **World Hepatitis Day** is observed annually on **28 July**.

Which of the statements given above is/are correct?

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

Answer: (d)

2. GOVERNMENT EXPANDS WELFARE INITIATIVES FOR SENIOR CITIZENS AND PERSONS WITH DISABILITIES ACROSS NORTH EASTERN STATES



- I. The welfare initiatives focus on:
 - A. Healthcare and rehabilitation services.
 - B. Distribution of assistive devices.

- C. Accessible infrastructure.
- D. Financial and social security schemes.
- E. Skill development and livelihood support.
- F. Awareness of rights and entitlements.

- II. Special emphasis is placed on improving outreach in the geographically challenging North Eastern Region through collaboration with State Governments and local institutions.

BACKGROUND / CONTEXT

Senior Citizens in India

- I. Governed by the **Maintenance and Welfare of Parents and Senior Citizens Act, 2007**.
- II. India has a rapidly growing elderly population, increasing the need for:
 - A. Healthcare.
 - B. Social security.
 - C. Long-term care.
 - D. Age-friendly infrastructure.

Persons with Disabilities (PwDs)

- Protected under the **Rights of Persons with Disabilities (RPwD) Act, 2016**.
- The Act adopts a rights-based approach and expands the recognized categories of disabilities from **7 to 21**.

MAJOR GOVERNMENT INITIATIVES

Rashtriya Vayoshri Yojana (RVY)

- I. Provides **free assisted-living devices** to senior citizens belonging to economically weaker sections.
- II. Devices include:
 - A. Walking sticks.
 - B. Wheelchairs.
 - C. Hearing aids.
 - D. Dentures.
 - E. Spectacles.

Atal Vayo Abhyuday Yojana (AVYAY)

- I. Umbrella scheme for senior citizens.
- II. Focuses on:

- A. Integrated care.
- B. Shelter homes.
- C. Helplines.
- D. Awareness.
- E. Productive ageing.

Assistance to Disabled Persons (ADIP)

Scheme

- Provides **assistive aids and appliances** to eligible Persons with Disabilities.
- Implemented through **Artificial Limbs Manufacturing Corporation of India (ALIMCO)** and other implementing agencies.

Rights of Persons with Disabilities (RPWD) Act, 2016

- I. Ensures:
 - A. Equality.
 - B. Non-discrimination.
 - C. Accessibility.
 - D. Education.
 - E. Employment.
 - F. Social inclusion.

Accessible India Campaign (Sugamya Bharat Abhiyan)

- I. Seeks to make:
 - A. Public buildings.
 - B. Transportation.
 - C. Information and communication technologies accessible to Persons with Disabilities.

SPECIAL FOCUS ON NORTH EASTERN STATES

The initiatives aim to:

- Improve access in remote and hilly areas.
- Strengthen rehabilitation services.
- Expand healthcare outreach.
- Promote digital service delivery.
- Enhance coordination with State Governments.
- Support inclusive community development.

SIGNIFICANCE

Social Inclusion

- Promotes dignity and independent living.
- Enhances community participation.

Healthcare

- Improves access to rehabilitation and assistive technology.
- Supports healthy ageing.

Economic

- Improves employability of Persons with Disabilities.
- Reduces dependency through skill development.

Regional Development

- Addresses regional disparities in welfare delivery across the North East.

KEY HIGHLIGHTS

- **Target Beneficiaries:** Senior Citizens and Persons with Disabilities.
- **Region:** North Eastern States.
- **Lead Ministry:** Ministry of Social Justice and Empowerment.
- **Major Schemes:** Rashtriya Vayoshri Yojana, AVYAY, ADIP Scheme, Accessible India Campaign.
- **Strategic Importance:** Inclusive development, social justice, and improved quality of life.
- **Challenges:** Difficult terrain, limited healthcare infrastructure, awareness gaps, and shortage of rehabilitation professionals.
- **Way Forward:** Strengthen community-based rehabilitation, expand telemedicine and digital services, improve accessibility, enhance convergence among welfare schemes, and build local capacity.

PRELIMS BOOSTER BOX

- **Rights of Persons with Disabilities (RPWD) Act, 2016:** Replaced the **Persons with Disabilities**



Act, 1995 and recognizes **21 categories of disabilities**.

- **Article 41:** Directs the State to provide public assistance in cases of old age, sickness, disablement, and unemployment, within its economic capacity.
- **Rashtriya Vayoshri Yojana (RVY):** Provides free assisted-living devices to eligible senior citizens from economically weaker sections.
- **Atal Vayo Abhyuday Yojana (AVYAY):** Umbrella scheme for the welfare of senior citizens.
- **ADIP Scheme:** Provides assistive aids and appliances to eligible Persons with Disabilities.
- **ALIMCO: Artificial Limbs Manufacturing Corporation of India,** a PSU under the Ministry of Social Justice and Empowerment.
- **Accessible India Campaign (Sugamya Bharat Abhiyan):** Launched in **2015** to improve accessibility in public infrastructure, transport, and ICT.
- **Department of Empowerment of Persons with Disabilities (DEPwD):** Functions under the **Ministry of Social Justice and Empowerment**.
- **United Nations Convention on the Rights of Persons with Disabilities (UNCRPD):** India ratified the Convention in **2007**.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **Rights of Persons with Disabilities Act, 2016** recognizes **21 categories of disabilities**.
2. **Rashtriya Vayoshri Yojana** provides assisted-living devices to eligible senior citizens belonging to economically weaker sections.
3. The **Accessible India Campaign (Sugamya Bharat Abhiyan)** aims to improve accessibility in public buildings, transportation, and information and communication technology.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

Answer: (d)

3. SKILLING FOR SPACE AND GEOSPATIAL SECTORS



- I. The initiative focuses on developing skilled professionals in:
 - A. Space technology.
 - B. Satellite applications.
 - C. Remote sensing.
 - D. Geographic Information Systems (GIS).
 - E. Drone technology.
 - F. Navigation and positioning systems.
 - G. Geospatial analytics.
- II. It promotes collaboration among:
 - A. Government institutions.
 - B. Educational institutions.
 - C. Industry.
 - D. Start-ups.
 - E. Research organisations.
- III. The objective is to create employment, foster innovation, and support India's emergence as a global space and geospatial hub.

BACKGROUND / CONTEXT

Space Sector in India

India's space ecosystem has expanded significantly due to:

- Opening of the space sector to private participation.
- Growth of space start-ups.
- Commercialisation of space technologies.
- Increasing demand for satellite-based services.

Geospatial Sector

The geospatial sector includes:

- Mapping.
- Surveying.
- Geographic Information Systems (GIS).
- Remote sensing.
- Navigation.
- Location-based services.
- Spatial data analytics.

It supports sectors such as:

- Agriculture.
- Urban planning.
- Disaster management.
- Defence.
- Infrastructure.
- Climate monitoring.

KEY GOVERNMENT INITIATIVES

Indian Space Policy, 2023

- I. Encourages greater participation of private entities.
- II. Clearly defines the roles of:
 - A. ISRO.
 - B. IN-SPACe.
 - C. NewSpace India Limited (NSIL).
- III. Promotes commercial utilisation of space technologies.

Geospatial Guidelines, 2021

- Liberalised mapping and geospatial data regulations.

- Encouraged innovation and investment.
- Simplified access to geospatial data.

National Education Policy (NEP), 2020

- I. Promotes:
 - A. Skill-based education.
 - B. Multidisciplinary learning.
 - C. Industry-academia collaboration.
 - D. Emerging technologies.

Skill India Mission

- Supports industry-relevant skill development.
- Encourages vocational education in emerging sectors.

MAJOR INSTITUTIONS

ISRO (Indian Space Research Organisation)

- India's national space agency.
- Develops satellites, launch vehicles, and space applications.

IN-SPACE

- **Indian National Space Promotion and Authorization Centre.**
- Promotes and regulates private participation in space activities.

NewSpace India Limited (NSIL)

- Commercial arm of ISRO.
- Facilitates commercial exploitation of space technologies.

National Remote Sensing Centre (NRSC)

- Provides remote sensing data and geospatial services.
- Supports planning, resource management, and disaster response.

APPLICATIONS OF SPACE & GEOSPATIAL

TECHNOLOGY

- Precision agriculture.
- Disaster management.
- Climate change monitoring.
- Urban planning.
- Land records modernization.



- Smart cities.
- Transport and logistics.
- Defence and border management.
- Telecommunications.
- Environmental conservation.

SIGNIFICANCE

Economic

- Supports India's growing space economy.
- Generates high-skilled employment.
- Encourages start-up growth.

Technological

- Promotes innovation in advanced technologies.
- Enhances research and development.

Strategic

- Strengthens national security.
- Improves space capabilities.
- Supports self-reliance under **Atmanirbhar Bharat**.

Governance

- Improves evidence-based policymaking using spatial data.
- Enhances service delivery through digital mapping.

KEY HIGHLIGHTS

- **Focus Areas:** Space technology, GIS, remote sensing, drones, satellite applications, and geospatial analytics.
- **Supporting Policies:** Indian Space Policy 2023, Geospatial Guidelines 2021, NEP 2020, Skill India Mission.
- **Major Institutions:** ISRO, IN-SPACe, NSIL, NRSC.
- **Strategic Importance:** Human capital development for India's expanding space and geospatial sectors.
- **Challenges:** Shortage of specialised workforce, industry-academia gap, limited advanced training infrastructure, and rapid technological change.

- **Way Forward:** Expand specialised training programmes, strengthen academia-industry partnerships, promote space start-ups, integrate geospatial education into curricula, and encourage innovation through research and incubation.

PRELIMS BOOSTER BOX

- **ISRO: Indian Space Research Organisation**, established in **1969** under the **Department of Space**.
- **Indian Space Policy, 2023:** Promotes greater private sector participation and commercialisation of India's space activities.
- **IN-SPACe: Indian National Space Promotion and Authorization Centre**, established to facilitate and regulate non-governmental space activities.
- **NSIL (NewSpace India Limited):** Commercial arm of ISRO, incorporated in **2019**.
- **Geospatial Guidelines, 2021:** Liberalised India's geospatial data policy to encourage innovation and investment.
- **GIS (Geographic Information System):** Computer-based system for capturing, storing, analysing, and visualising spatial data.
- **Remote Sensing:** Acquisition of information about Earth's surface using satellite or airborne sensors without physical contact.
- **GNSS: Global Navigation Satellite System** used for positioning, navigation, and timing.
- **NavIC:** India's regional satellite navigation system developed by ISRO.
- **National Remote Sensing Centre (NRSC):** ISRO centre responsible for remote sensing data acquisition and geospatial applications.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **Indian Space Policy, 2023** encourages greater private sector participation in space activities.



2. **IN-SPACe** has been established to facilitate and regulate non-governmental participation in India's space sector.
3. **Geographic Information Systems (GIS)** are used for capturing, analysing, and visualising spatial data.

Which of the statements given above is/are correct?

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

Answer: (d)

4. ASTRONOMERS DISCOVER AN ACTIVELY FORMING LUMINOUS BLUE STRAGGLER STAR



- I. The newly observed **Blue Straggler Star (BSS)** appears to be **actively forming**, rather than being observed only after its formation.
- II. The discovery supports the theory that blue stragglers can form through:
 - A. **Mass transfer** between binary stars, or
 - B. **Stellar mergers** resulting from close interactions.

- III. It helps astronomers better understand how stars evolve beyond their expected life cycles.

BACKGROUND / CONTEXT

What is a Blue Straggler Star?

A **Blue Straggler Star (BSS)** is a star that appears:

- **Hotter**
- **Brighter**
- **More massive**
- **Younger-looking**

than other stars of the same age in a star cluster.

Normally, stars in a cluster form at roughly the same time. Massive stars evolve faster and leave the **main sequence** earlier. However, blue stragglers remain on the main sequence, appearing to "lag behind" in evolution—hence the name **Blue Straggler**.

HOW DO BLUE STRAGGLERS FORM?

Mass Transfer in Binary Systems (Most Common)

- Two stars orbit each other.
- As one star evolves, it transfers material to its companion.
- The companion gains mass, becomes hotter and brighter, and appears younger.

Stellar Collision or Merger

- In densely populated regions such as **globular clusters**, stars may collide or merge.
- The merged star has greater mass and shines as a blue straggler.

WHY IS THIS DISCOVERY IMPORTANT?

The discovery is significant because it:

- I. Captures a blue straggler **during its formation**, rather than after the process has finished.
- II. Provides direct evidence supporting theories of stellar mass transfer.
- III. Improves understanding of:
 - A. Stellar evolution.
 - B. Binary star systems.
 - C. Dynamics of star clusters.



- IV. Helps refine astrophysical models of star formation and ageing.

WHERE ARE BLUE STRAGGLERS FOUND?

Blue stragglers are commonly observed in:

- **Globular clusters**
- **Open clusters**
- Occasionally in the **galactic field**

They are especially common in **dense stellar environments**, where close stellar interactions are more likely.

SIGNIFICANCE

Scientific

- Enhances knowledge of stellar evolution.
- Validates theories of binary star interactions.

Astronomical

- Improves understanding of star cluster dynamics.
- Refines models of stellar populations.

Technological

- Demonstrates the capabilities of modern telescopes and advanced observational techniques in detecting rare stellar phenomena.

KEY HIGHLIGHTS

- **Discovery:** Actively forming luminous Blue Straggler Star.
- **Formation Mechanism:** Likely through binary mass transfer or stellar merger.
- **Importance:** Offers direct evidence of blue straggler formation.
- **Applications:** Advances research in stellar evolution, astrophysics, and star cluster dynamics.
- **Challenges:** Such stars are rare and difficult to observe during formation.
- **Way Forward:** Continued observations using next-generation telescopes and multi-wavelength studies to better understand stellar evolution.

PRELIMS BOOSTER BOX

- **Blue Straggler Star (BSS):** A star that appears hotter, brighter, and younger than other stars in the same cluster.
- **Main Sequence:** The longest stage in a star's life, during which it fuses hydrogen into helium in its core.
- **Binary Star System:** Two stars gravitationally bound and orbiting a common centre of mass.
- **Mass Transfer:** Movement of stellar material from one star to its companion in a binary system.
- **Globular Cluster:** A dense, spherical collection of very old stars orbiting the galactic centre.
- **Open Cluster:** A loosely bound group of relatively young stars formed from the same molecular cloud.
- **Stellar Merger:** The collision and combination of two stars into a single, more massive star.
- **Hertzsprung–Russell (H–R) Diagram:** A graph showing the relationship between a star's luminosity and surface temperature, widely used to study stellar evolution.
- **Luminosity:** The total amount of energy emitted by a star per unit time.
- **Stellar Evolution:** The life cycle of a star from its formation to its final stage, such as a white dwarf, neutron star, or black hole.

PadhAI-GENERATED UPSC MCQ

Consider the following statements regarding Blue Straggler Stars:

1. Blue Straggler Stars appear hotter and brighter than other stars of the same age in a star cluster.
2. They can form through mass transfer in binary star systems.
3. They are commonly found in globular clusters.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

Answer: (d)

5. MAHARASHTRA BECOMES THE FIRST STATE TO QUALIFY FOR THE SECOND RKVY INSTALLMENT; UNION AGRICULTURE MINISTER CONGRATULATES THE STATE FOR TIMELY FUND UTILISATION



- I. Maharashtra became the first State to receive eligibility for the **second installment of RKVY funds**.
- II. The achievement reflects:
 - A. Timely utilisation of the first installment.
 - B. Efficient implementation of approved projects.
 - C. Compliance with programme guidelines and monitoring requirements.
- III. The Government emphasized that effective utilisation of RKVY funds is essential for:
 - A. Increasing agricultural productivity.

- B. Strengthening agricultural infrastructure.
- C. Promoting innovation and sustainability.
- D. Enhancing farmers' income.

BACKGROUND / CONTEXT

Rashtriya Krishi Vikas Yojana (RKVY)

- **Launched: 2007**
- **Implementing Ministry:** Ministry of Agriculture & Farmers' Welfare.
- **Current Name: RKVY – RAFTAAR (Remunerative Approaches for Agriculture and Allied Sector Rejuvenation).**

Objectives

- Encourage States to increase investment in agriculture.
- Promote holistic agricultural development.
- Improve productivity and farmers' income.
- Support innovation, agri-startups, and value addition.
- Strengthen allied sectors such as horticulture, livestock, fisheries, and dairy.

KEY FEATURES OF RKVY–RAFTAAR

Flexibility to States

States can design projects according to their:

- Agro-climatic conditions.
- Local priorities.
- Regional agricultural needs.

Eligible Sectors

- Crop production.
- Horticulture.
- Animal husbandry.
- Fisheries.
- Dairy development.
- Agricultural mechanisation.
- Irrigation.
- Post-harvest management.
- Agricultural marketing.

- Agri-entrepreneurship.

Innovation and Start-ups

RKVY supports:

- Agri-business incubation.
- Agricultural start-ups.
- Technology transfer.
- Precision farming.
- Digital agriculture.

IMPORTANCE OF TIMELY FUND UTILISATION

Efficient utilisation ensures:

- Faster implementation of projects.
- Better outcomes for farmers.
- Improved accountability.
- Timely release of subsequent installments.
- Enhanced agricultural infrastructure.

SIGNIFICANCE

Agricultural Growth

- Improves productivity.
- Encourages crop diversification.
- Promotes climate-resilient farming.

Economic

- Enhances farmers' income.
- Supports rural employment.
- Strengthens the agricultural value chain.

Institutional

- Encourages better financial management.
- Improves monitoring and evaluation.
- Promotes cooperative federalism.

KEY HIGHLIGHTS

- **Scheme:** Rashtriya Krishi Vikas Yojana – RAFTAAR (RKVY-RAFTAAR).
- **Implementing Ministry:** Ministry of Agriculture & Farmers' Welfare.
- **Achievement:** Maharashtra became the first State to qualify for the second installment.
- **Reason:** Timely utilisation of funds and effective project implementation.

- **Major Focus:** Agricultural infrastructure, innovation, productivity, and farmers' welfare.
- **Strategic Importance:** Strengthens agricultural development through performance-based fund utilisation.
- **Challenges:** Uneven implementation across States, project delays, monitoring gaps, and capacity constraints.
- **Way Forward:** Strengthen project monitoring, encourage best-practice sharing among States, promote digital fund tracking, and accelerate innovation-led agricultural growth.

PRELIMS BOOSTER BOX

- **RKVY: Rashtriya Krishi Vikas Yojana**, launched in **2007**.
- **Current Name: RKVY-RAFTAAR (Remunerative Approaches for Agriculture and Allied Sector Rejuvenation)**.
- **Implementing Ministry:** Ministry of Agriculture & Farmers' Welfare.
- **Objective:** Promote holistic agricultural development through **State-specific planning** and investment.
- **RAFTAAR Component:** Supports **agri-startups**, innovation, incubation, and agri-entrepreneurship.
- **Flexible Funding:** States can prioritise projects based on local agricultural needs.
- **Major Sectors Covered:** Agriculture, horticulture, livestock, fisheries, dairy, mechanisation, irrigation, post-harvest management, and marketing.
- **Related Initiative: Per Drop More Crop** under the **Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)** promotes efficient water use.
- **Agriculture:** Falls under the **State List (List II)** of the Seventh Schedule of the Constitution, while the Union supports States through centrally sponsored schemes.



PadhAI-GENERATED UPSC MCQ

Consider the following statements regarding the
Rashtriya Krishi Vikas Yojana (RKVY):

1. RKVY was launched in **2007** to promote holistic agricultural development.
2. The scheme provides flexibility to States to formulate projects based on local agricultural priorities.
3. Under **RKVY-RAFTAAR**, support is also provided for agri-startups and agricultural innovation.

Which of the statements given above is/are correct?

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

Answer: (d)

1. INDIA LEADS THE WILDERNESS IN TIGER CONSERVATION



- I. India is home to the **largest wild tiger population in the world**, accounting for **over 70% of the global wild tiger population**.
- II. The success of tiger conservation has been driven by:
 - A. **Project Tiger**.
 - B. Expansion of **Tiger Reserves**.
 - C. Strong legal protection under the **Wild Life (Protection) Act, 1972**.
 - D. Scientific monitoring using camera traps and technology.
 - E. Community participation and eco-development.
- III. Tiger conservation has also contributed to:
 - A. Biodiversity conservation.
 - B. Protection of forests and watersheds.
 - C. Climate resilience.
 - D. Sustainable livelihoods through eco-tourism.

BACKGROUND / CONTEXT

Project Tiger

- **Launched: 1973**
- **Objective:** Ensure the long-term survival of tigers in their natural habitats.
- Initially started with **9 Tiger Reserves**.
- Today, India has **more than 50 Tiger Reserves**, covering a significant area of protected forests.

National Tiger Conservation Authority (NTCA)

- I. Established under the **Wild Life (Protection) Act, 1972** (amended in 2006).
- II. Functions under the **Ministry of Environment, Forest and Climate Change (MoEFCC)**.
- III. Responsible for:
 - A. Tiger conservation policy.
 - B. Monitoring tiger reserves.
 - C. Funding and technical support.
 - D. Strengthening protection measures.

KEY CONSERVATION MEASURES

Habitat Protection

- Expansion and effective management of tiger reserves.
- Conservation of wildlife corridors.
- Restoration of degraded habitats.

Scientific Monitoring

- Camera trap surveys.
- GPS and GIS-based monitoring.
- Periodic **All India Tiger Estimation**.

Anti-Poaching Measures

- Special Tiger Protection Force (STPF).
- Drone surveillance.
- Intelligence-led enforcement.
- Strengthened patrolling.

Community Participation

- Eco-development committees.
- Livelihood support.
- Human-wildlife conflict mitigation.
- Eco-tourism initiatives.

IMPORTANCE OF TIGERS

Ecological

- Apex predators that maintain ecological balance.
- Regulate prey populations.
- Preserve healthy forest ecosystems.

Environmental

- I. Healthy tiger habitats conserve:
 - A. Forests.
 - B. Rivers.
 - C. Watersheds.
 - D. Carbon sinks.

Economic

- Promote wildlife tourism.
- Generate rural employment.
- Support local economies.

GLOBAL INITIATIVES

Global Tiger Forum (GTF)

- International intergovernmental organization headquartered in **New Delhi**.
- Promotes cooperation among tiger-range countries.

TX2 Initiative

- Global goal launched in **2010** to **double the world's wild tiger population by 2022**.
- India played a leading role in achieving significant progress toward this objective.

SIGNIFICANCE

Biodiversity Conservation

- Protects numerous species sharing tiger habitats.

Climate Action

- Conserved forests act as major carbon sinks.

Sustainable Development

- Supports **SDG 15 (Life on Land)** and **SDG 13 (Climate Action)**.

International Leadership

- Positions India as a global model in wildlife conservation.

KEY HIGHLIGHTS

- **Flagship Programme:** Project Tiger.
- **Launch Year:** 1973.

- **Nodal Authority:** National Tiger Conservation Authority (NTCA).
- **Implementing Ministry:** Ministry of Environment, Forest and Climate Change.
- **Global Share:** India is home to **over 70% of the world's wild tigers**.
- **Major Focus:** Habitat conservation, scientific monitoring, anti-poaching, and community participation.
- **Challenges:** Habitat fragmentation, poaching, human-wildlife conflict, and climate change.
- **Way Forward:** Strengthen wildlife corridors, expand technology-driven monitoring, improve community participation, enhance interstate coordination, and promote sustainable eco-tourism.

PRELIMS BOOSTER BOX

- **Project Tiger:** Launched in **1973** to conserve the Bengal Tiger in India.
- **National Tiger Conservation Authority (NTCA):** Statutory body established in **2006** under the **Wild Life (Protection) Act, 1972**.
- **Wild Life (Protection) Act, 1972:** Principal legislation for wildlife conservation in India.
- **Tiger Census:** Conducted periodically using camera traps, GIS, and statistical methods as part of the **All India Tiger Estimation**.
- **Tiger Reserve:** Protected area notified for tiger conservation under the **Wild Life (Protection) Act**.
- **Global Tiger Forum (GTF):** Only intergovernmental organization dedicated exclusively to tiger conservation; headquartered in **New Delhi**.
- **TX2 Goal:** Global initiative launched in **2010** to double wild tiger numbers by **2022**.
- **IUCN Status of Tiger:** **Endangered**.
- **CITES:** Tigers are listed under **Appendix I**, prohibiting international commercial trade in wild-caught specimens.

- **Apex Predator:** A predator at the top of the food chain that helps maintain ecosystem balance.

PadhAI-GENERATED UPSC MCQ

Consider the following statements regarding tiger conservation in India:

1. **Project Tiger** was launched in **1973**.
2. The **National Tiger Conservation Authority (NTCA)** is a statutory body established under the **Wild Life (Protection) Act, 1972**.
3. India is home to **over 70% of the world's wild tiger population**.

Which of the statements given above is/are correct?

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

Answer: (d)

2. INDIA EMERGES AS THE WORLD'S SECOND-LARGEST SUPPLIER OF SEAFARERS



- I. India is now one of the leading providers of skilled seafarers to the global shipping industry.
- II. The growth has been driven by:
 - A. Expansion of maritime education and training.

- B. Improved certification standards.
- C. Digital reforms in maritime administration.
- D. Increased participation of women in the maritime sector.
- E. Strong alignment with international maritime standards.

- III. The development supports India's vision of becoming a **global maritime hub**.

BACKGROUND / CONTEXT

Who is a Seafarer?

A **seafarer** is a person employed or engaged to work on a seagoing vessel, including:

- Deck officers.
- Marine engineers.
- Navigation officers.
- Ratings (crew members).
- Electro-technical officers.
- Catering and support staff.

Seafarers are essential for:

- Global trade.
- Shipping operations.
- Maritime logistics.
- Offshore energy activities.

INDIA'S MARITIME SECTOR

India possesses:

- **7,500 km** coastline.
- **12 Major Ports** and over **200 Non-Major Ports**.
- Strategic location along major international sea routes.
- A rapidly expanding shipping and logistics ecosystem.

Nearly **95% of India's merchandise trade by volume** and around **70% by value** is transported through maritime routes.

KEY GOVERNMENT INITIATIVES

Maritime India Vision (MIV) 2030

- I. Roadmap for transforming India's maritime sector.

- II. Focus areas:
- A. Port modernization.
 - B. Maritime logistics.
 - C. Skill development.
 - D. Shipbuilding.
 - E. Coastal shipping.

Maritime Amrit Kaal Vision 2047

- I. Long-term strategy for making India a leading global maritime nation.
- II. Emphasizes:
 - A. Innovation.
 - B. Sustainability.
 - C. Green shipping.
 - D. Employment generation.

Sagarmala Programme

- I. Launched in **2015**.
- II. Objective:
 - A. Port-led development.
 - B. Enhanced logistics efficiency.
 - C. Coastal community development.
 - D. Maritime employment.

Directorate General of Shipping (DGS)

- I. Functions under the **Ministry of Ports, Shipping and Waterways**.
- II. Regulates:
 - A. Maritime education.
 - B. Seafarer certification.
 - C. Training institutes.
 - D. Shipping standards.

INTERNATIONAL FRAMEWORK

International Maritime Organization (IMO)

- I. Specialized agency of the United Nations.
- II. Develops global regulations for:
 - A. Shipping safety.
 - B. Maritime security.
 - C. Marine pollution prevention.

STCW Convention

Standards of Training, Certification and Watchkeeping (STCW), 1978

- I. Establishes international standards for:
 - A. Training.
 - B. Certification.
 - C. Competency of seafarers.

India complies with the STCW Convention, enhancing the global employability of Indian seafarers.

SIGNIFICANCE

Economic

- Generates foreign exchange through overseas employment.
- Supports India's maritime economy.

Employment

- Creates high-skilled jobs for youth.
- Expands opportunities for women in maritime careers.

Strategic

- Enhances India's global maritime influence.
- Supports the Blue Economy and maritime security.

Global Trade

- Strengthens the international shipping workforce.
- Reinforces India's reputation for skilled maritime professionals.

KEY HIGHLIGHTS

- **Achievement:** India becomes the world's second-largest supplier of seafarers.
- **Nodal Ministry:** Ministry of Ports, Shipping and Waterways.
- **Regulator:** Directorate General of Shipping (DGS).
- **Supporting Initiatives:** Maritime India Vision 2030, Maritime Amrit Kaal Vision 2047, Sagarmala Programme.



- **Major Focus:** Maritime skill development, certification, employment, and global competitiveness.
- **Strategic Importance:** Supports India's Blue Economy and global maritime leadership.
- **Challenges:** Automation in shipping, evolving skill requirements, ensuring seafarer welfare, and improving gender diversity.
- **Way Forward:** Expand maritime training capacity, adopt advanced simulation technologies, strengthen international partnerships, promote green shipping skills, and improve welfare measures for seafarers.

PRELIMS BOOSTER BOX

- **Seafarer:** A person employed to work aboard a seagoing vessel.
- **Directorate General of Shipping (DGS):** Maritime administration under the **Ministry of Ports, Shipping and Waterways**.
- **STCW Convention (1978):** International convention prescribing minimum standards for training and certification of seafarers.
- **International Maritime Organization (IMO):** UN specialized agency headquartered in **London, United Kingdom**.
- **Sagarmala Programme:** Launched in **2015** for port-led development and improved logistics.
- **Maritime India Vision (MIV) 2030:** Blueprint for transforming India's maritime sector through infrastructure, technology, and skill development.
- **Blue Economy:** Sustainable use of ocean resources for economic growth, livelihoods, and ecosystem health.
- **UNCLOS (1982):** United Nations Convention on the Law of the Sea, often called the "Constitution of the Oceans."
- **India's Coastline:** Approximately **7,500 km**.
- **Merchant Shipping:** Refers to commercial vessels engaged in transporting cargo and passengers.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **Directorate General of Shipping (DGS)** functions under the **Ministry of Ports, Shipping and Waterways**.
2. The **STCW Convention** lays down international standards for the training and certification of seafarers.
3. The **International Maritime Organization (IMO)** is a specialized agency of the **United Nations**.

Which of the statements given above is/are correct?

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

Answer: (d)

3. PRESIDENT DROUPADI MURMU LAUNCHES VARIOUS INITIATIVES AT RASHTRAPATI BHAVAN TO MARK COMPLETION OF FOUR YEARS OF HER PRESIDENCY



- I. The initiatives launched by the President reflect efforts to transform **Rashtrapati Bhavan** into a more accessible, inclusive, and people-oriented institution.
- II. The programmes focus on:
 - A. Improving visitor experience.

- B. Promoting India's cultural heritage.
- C. Using technology for better public access.
- D. Encouraging environmental sustainability.
- E. Strengthening interaction between the President's Office and citizens.

BACKGROUND / CONTEXT

Rashtrapati Bhavan

- I. Rashtrapati Bhavan is the **official residence of the President of India**.
- II. Located on **Raisina Hill, New Delhi**.
- III. It was originally built as the residence of the **Viceroy of India** during British rule.
- IV. Designed by architects:
 - A. **Sir Edwin Lutyens**
 - B. **Sir Herbert Baker**
- V. Construction was completed in **1929**.
- VI. It became the official residence of the President of India after independence.

INITIATIVES AT RASHTRAPATI BHAVAN

Heritage and Cultural Preservation

- I. Initiatives focus on showcasing:
 - A. India's architectural heritage.
 - B. Art collections.
 - C. Historical significance of Rashtrapati Bhavan.
- II. Efforts aim to preserve national heritage while making it accessible to citizens.

Digital Accessibility

- I. Technology-based initiatives help citizens:
 - A. Explore Rashtrapati Bhavan virtually.
 - B. Access information about its history and institutions.
 - C. Improve visitor services.

Digital platforms support greater transparency and public participation.

Sustainable Development Initiatives

Focus areas include:

- Green practices.
- Water conservation.
- Energy efficiency.
- Environment-friendly management of the presidential estate.

These efforts align with India's broader sustainability goals.

Citizen-Centric Engagement

The initiatives encourage:

- Greater public participation.
- Educational visits.
- Awareness about constitutional institutions.
- Stronger connection between citizens and the highest constitutional office.

ROLE OF THE PRESIDENT OF INDIA

Constitutional Position

- The President is the **Head of the State** of India.
- Provisions relating to the President are contained in **Part V, Chapter I of the Constitution**.

Important Articles

Article	Provision
Article 52	The President of India
Article 53	Executive power of the Union
Article 54	Election of President
Article 56	Term of office
Article 60	Oath or affirmation of the President

SIGNIFICANCE

Constitutional Awareness

- Enhances public understanding of India's constitutional institutions.



- Encourages citizens to engage with democratic traditions.

Cultural Importance

- Preserves and promotes India's heritage.
- Highlights Rashtrapati Bhavan as a symbol of national identity.

Governance

- Promotes transparency and accessibility.
- Strengthens citizen-oriented functioning of public institutions.

Sustainability

- Demonstrates environmentally responsible management of heritage properties.

KEY HIGHLIGHTS

- **Occasion:** Completion of four years of President Droupadi Murmu's presidency.
- **Venue:** Rashtrapati Bhavan, New Delhi.
- **Focus Areas:** Heritage conservation, digital outreach, sustainability, and citizen engagement.
- **Institution:** Office of the President of India.
- **Strategic Importance:** Strengthening public connection with constitutional institutions.
- **Challenges:** Balancing heritage preservation with modernization, managing visitors, and maintaining sustainability standards.
- **Way Forward:** Expand digital initiatives, promote constitutional literacy, preserve heritage assets, and encourage wider citizen participation.

PRELIMS BOOSTER BOX

- President of India:** Constitutional head of the Indian State.
- Article 52:** Provides for the office of the President of India.
- Article 54:** President is elected by an **Electoral College** consisting of:
 - A. Elected members of both Houses of Parliament.

- B. Elected members of State Legislative Assemblies.

- C. Elected members of Legislative Assemblies of Delhi and Puducherry.

- Article 56:** President holds office for a term of **five years**.
- Article 60:** Deals with the oath or affirmation of the President.
- Rashtrapati Bhavan:** Official residence of the President of India.
- Location:** Raisina Hill, New Delhi.
- Architects:** Edwin Lutyens and Herbert Baker.
- Original Purpose:** Built as the residence of the Viceroy of India.
- President Droupadi Murmu:** Became the **15th President of India** and the first person belonging to a tribal community to hold the office.

PadhAI-GENERATED UPSC MCQ

Consider the following statements regarding the President of India:

1. The President of India is the constitutional head of the Indian State.
2. The President is elected by an Electoral College consisting of elected members of Parliament and State Legislative Assemblies.
3. The term of office of the President is five years.

Which of the statements given above is/are correct?

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

Answer: (d)

4. AGRICULTURAL INPUT SUBSIDY FOR HORTICULTURE CROPS



- The Government has increased the Agricultural Input Subsidy for damaged horticulture crops to improve post-disaster support for farmers.
- Horticulture crops involve relatively higher cultivation costs and generate greater value than many field crops; hence, enhanced compensation reduces financial distress.
- The revised subsidy strengthens disaster resilience in agriculture by facilitating quicker restoration of orchards and plantations.
- It complements India's broader strategy of climate-resilient agriculture amid increasing frequency of extreme weather events.
- The measure also supports farmers' income stability, food and nutritional security, and rural livelihoods.
- Effective implementation requires timely crop damage assessment, transparent fund release, and coordination between the Centre and States.
- The initiative reinforces disaster risk reduction as an integral component of agricultural governance.

BACKGROUND / CONTEXT

Agricultural Input Subsidy (AIS)

- Agricultural Input Subsidy is financial assistance provided to farmers whose crops

are damaged due to **notified natural calamities**.

- It is intended to help farmers purchase seeds, fertilizers, planting material and other essential inputs for the next cropping season.
- The subsidy is a **relief measure**, not compensation for the full value of crop losses.

Disaster Relief Framework

- Assistance is provided according to the norms of the **State Disaster Response Fund (SDRF)**.
- In severe disasters, additional assistance may be provided from the **National Disaster Response Fund (NDRF)** after assessment by an Inter-Ministerial Central Team (IMCT).
- Disaster relief operates under the **Disaster Management Act, 2005**.

Horticulture in India

- I. Horticulture includes:
 - A. Fruits
 - B. Vegetables
 - C. Flowers
 - D. Spices
 - E. Plantation crops
 - F. Medicinal and aromatic plants
- II. The sector contributes significantly to agricultural diversification, farmers' income, exports, nutrition, and employment.

Why Horticulture Needs Higher Support

- High initial investment in planting material and irrigation.
- Longer gestation period for orchards.
- Perishable produce with limited shelf life.
- Greater vulnerability to unseasonal rainfall, hailstorms, frost and cyclones.

KEY HIGHLIGHTS

- **Policy Measure:** Enhanced Agricultural Input Subsidy for horticulture crops damaged by notified natural calamities.



- **Institutional Mechanism:** Financial assistance through SDRF with additional support from NDRF where required.
- **Objective:** Enable farmers to restore cultivation and reduce post-disaster financial stress.
- **Strategic Significance:** Promotes climate-resilient agriculture and safeguards high-value crop production.
- **Economic Impact:** Supports rural incomes, agricultural exports, and supply of fruits and vegetables.
- **Governance Aspect:** Encourages faster relief delivery, better disaster assessment, and coordinated Centre-State action.
- **Challenges:** Delays in crop damage assessment, uneven implementation across States, and limited awareness among beneficiaries.
- **Way Forward:** Strengthen remote sensing-based crop assessment, improve direct benefit transfers, integrate crop insurance with disaster relief, and expand climate-resilient horticultural practices.

PRELIMS BOOSTER BOX

- **Disaster Management Act:** 2005.
- **Disaster Relief Funds:** State Disaster Response Fund (SDRF) and National Disaster Response Fund (NDRF).
- **Finance Commission:** Recommends the corpus and funding pattern of SDRF and NDRF.
- **Nodal Ministry:** Ministry of Home Affairs administers disaster relief funds.
- **Agricultural Input Subsidy:** Relief assistance for purchasing agricultural inputs after crop damage; it is **not** compensation for the total crop value.
- **Horticulture:** Cultivation of fruits, vegetables, flowers, spices, plantation, medicinal and aromatic crops.
- **Crop Insurance vs Input Subsidy:** Crop insurance indemnifies insured losses, whereas

Agricultural Input Subsidy is disaster relief under notified calamity norms.

- **Climate Risks to Horticulture:** Hailstorms, frost, heatwaves, floods, cyclones, droughts, and unseasonal rainfall.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. Agricultural Input Subsidy is provided to assist farmers in restoring cultivation after crop losses due to notified natural calamities.
2. Assistance under Agricultural Input Subsidy is generally provided through the State Disaster Response Fund based on prescribed norms.
3. Agricultural Input Subsidy is intended to fully compensate farmers for the market value of crop losses.

Which of the statements given above is/are correct?

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

Answer: (b)

5. GOVERNMENT IMPOSES STOCK HOLDING LIMITS ON SUGAR DEALERS



- The Government has prescribed stock limits for sugar dealers to discourage artificial shortages created through hoarding.
- The decision seeks to stabilise retail sugar prices, particularly during periods of high demand such as festive seasons.



- Mandatory stock disclosure enhances transparency in the sugar supply chain and facilitates effective market monitoring.
- The measure balances the interests of consumers by ensuring affordable prices while maintaining orderly market operations.
- It strengthens regulatory oversight of essential food commodities without disrupting legitimate trade.
- Stable sugar prices also contribute to food inflation management and broader macroeconomic stability.
- The initiative reflects the government's commitment to ensuring food security through efficient market regulation.

BACKGROUND / CONTEXT

What are Stock Holding Limits?

- Stock holding limits specify the **maximum quantity of a commodity** that traders, wholesalers, retailers, or processors can store.
- They are imposed to prevent:
 - Hoarding
 - Black marketing
 - Artificial price rise
 - Supply manipulation

Sugar Sector in India

- India is among the **largest producers and consumers of sugar** globally.
- Sugar is produced primarily from **sugarcane**, an important cash crop supporting millions of farmers.
- The sector has strong linkages with:
 - Rural employment
 - Ethanol production
 - Food processing industry
 - Export and import policy

Legal Framework

- Stock limits are imposed under the powers available through the **Essential Commodities**

Act, 1955, whenever necessary to safeguard public interest.

- The Department of Food and Public Distribution monitors sugar availability, production, consumption, and market prices.

Why Stock Limits are Necessary

- Prevent speculative hoarding.
- Ensure uninterrupted market supply.
- Protect consumers from sudden price spikes.
- Improve transparency through regular stock reporting.

KEY HIGHLIGHTS

- **Policy Measure:** Stock holding limits imposed on sugar dealers across the country.
- **Institutional Mechanism:** Monitoring by the Department of Food and Public Distribution through mandatory online stock disclosure.
- **Objective:** Prevent hoarding, ensure adequate availability, and stabilise retail prices.
- **Strategic Significance:** Strengthens food security and enhances confidence in agricultural commodity markets.
- **Economic Impact:** Helps moderate food inflation while ensuring smooth movement of sugar in domestic markets.
- **Governance Aspect:** Promotes transparency, accountability, and real-time monitoring of commodity stocks.
- **Challenges:** Accurate stock verification, preventing under-reporting, and balancing market regulation with ease of doing business.
- **Way Forward:** Strengthen digital stock monitoring, improve enforcement mechanisms, integrate market intelligence systems, and promote predictable sugar policy.

PRELIMS BOOSTER BOX

- **Essential Commodities Act:** 1955.
- **Objective of the Act:** Regulate production, supply, distribution, and trade of essential commodities in public interest.



- **Department Concerned:** Department of Food and Public Distribution under the Ministry of Consumer Affairs, Food and Public Distribution.
- **Sugar Source:** Produced primarily from **Sugarcane (*Saccharum officinarum*)**.
- **Major Sugarcane Producing States:** Uttar Pradesh, Maharashtra, Karnataka, Tamil Nadu, Gujarat, Bihar, and Haryana.
- **By-products of Sugar Industry:** Molasses, bagasse, press mud, and ethanol.
- **Hoarding:** Deliberate accumulation of goods to create artificial scarcity and increase prices.
- **Buffer Stock:** Reserve stock maintained to ensure supply stability during shortages.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. Stock holding limits are imposed to prevent hoarding and artificial scarcity of essential commodities.
2. Mandatory disclosure of sugar stocks improves transparency and enables better market monitoring.
3. Stock holding limits are intended to promote speculative trading in agricultural commodities.

Which of the statements given above is/are correct?

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

Answer: (b)

1. PM VIDYALAXMI SCHEME



- I. PM Vidyalaxmi offers:
 - A. **Collateral-free and guarantor-free education loans.**
 - B. A **fully digital application process** through a unified portal.
 - C. **Credit guarantee** support for eligible loans.
 - D. **Interest subvention** for eligible students from lower-income families.
- II. It supports admissions based on **merit** in identified Quality Higher Education Institutions (QHEIs).

BACKGROUND / CONTEXT

Objective

The scheme seeks to:

- Increase access to quality higher education.
- Reduce financial barriers.
- Promote equitable educational opportunities.
- Improve the Gross Enrolment Ratio (GER) in higher education.

KEY FEATURES OF PM VIDYALAXMI

Eligibility

Students must:

- Be **Indian nationals.**
- Secure admission through **merit-based selection or competitive examinations.**

- Obtain admission in an identified **Quality Higher Education Institution (QHEI).**
- Students admitted through **management quota or similar quotas are generally not eligible** under the scheme.

Eligible Institutions

- The scheme covers identified **Quality Higher Education Institutions**, including institutions selected based on **NIRF rankings** and eligible Central and State Government institutions.
- The list is updated periodically by the Department of Higher Education.

Education Loan

- I. Need-based finance for eligible educational expenses.
- II. **No collateral security or third-party guarantor.**
- III. Covers:
 - A. Tuition fees.
 - B. Hostel charges.
 - C. Books and equipment.
 - D. Laptop (where applicable).
 - E. Other approved academic expenses.

Credit Guarantee

- Loans **up to ₹7.5 lakh** are backed by a **75% Government credit guarantee**, encouraging banks to lend without collateral.

Interest Subvention

Eligible students may receive interest support during the **moratorium period (course duration + one year):**

- **Annual family income up to ₹4.5 lakh:** Higher interest support as per applicable Central Government norms.
- **Annual family income above ₹4.5 lakh and up to ₹8 lakh:** **3% interest subvention** on eligible education loans up to ₹10 lakh during the moratorium period.

APPLICATION PROCESS

Students can apply through the official unified portal:

- Register online.



- Fill a common loan application.
- Upload documents.
- Choose a participating bank.
- Track application status digitally.

SIGNIFICANCE

Educational

- Expands access to quality higher education.
- Encourages merit-based admissions.

Social

- Supports students from economically weaker families.
- Promotes educational equity.

Economic

- Develops skilled human resources.
- Contributes to India's knowledge economy.

Governance

- Simplifies education loan processing through a single digital platform.

KEY HIGHLIGHTS

- **Scheme:** PM Vidyalaxmi.
- **Type:** Central Sector Scheme.
- **Implementing Ministry:** Ministry of Education (Department of Higher Education).
- **Major Benefit:** Collateral-free and guarantor-free education loans.
- **Credit Guarantee:** 75% Government guarantee for eligible loans up to ₹7.5 lakh.
- **Interest Benefit:** Up to 3% interest subvention for eligible students with annual family income up to ₹8 lakh (subject to scheme norms).
- **Application Mode:** Fully digital through the PM Vidyalaxmi portal.
- **Strategic Importance:** Improves access to higher education, promotes financial inclusion, and strengthens India's human capital.

PRELIMS BOOSTER BOX

- **Scheme Type:** Central Sector Scheme.

- **Nodal Ministry:** Ministry of Education, Department of Higher Education.
- **Target Group:** Meritorious students admitted to identified Quality Higher Education Institutions (QHEIs).
- **Loan Security:** No collateral and no guarantor required.
- **Credit Guarantee:** 75% Government guarantee for eligible loans up to ₹7.5 lakh.
- **Interest Subvention:** Available for eligible students with annual family income up to ₹8 lakh, subject to scheme guidelines.
- **Moratorium Period:** Course duration plus one year.
- **Institution Selection:** Based on notified Quality Higher Education Institutions, including eligible NIRF-ranked institutions.
- **Portal:** Unified digital platform for education loan applications across participating banks.

PadhAI-GENERATED UPSC MCQ

Consider the following statements regarding the PM Vidyalaxmi Scheme:

1. It provides collateral-free and guarantor-free education loans to eligible meritorious students.
2. Students admitted through merit-based selection in identified Quality Higher Education Institutions are eligible.
3. Eligible education loans up to ₹7.5 lakh receive a 75% Government credit guarantee.

Which of the statements given above is/are correct?

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

Answer: (d)

2. RELEASE OF SUB-SECTORAL TRIAL INDEX OF SERVICES PRODUCTION (ISP) FOR MAY 2026 (BASE YEAR 2024–25)



- I. The **Index of Services Production (ISP)** is a **monthly indicator** measuring production trends in the organised services sector.
- II. The trial index:
 - A. Tracks performance across **19 service sub-sectors**.
 - B. Covers around **two-thirds of the Gross Value Added (GVA)** of the services sector.
 - C. Uses **2024–25 as the base year**.
- III. The index is expected to become an important tool for:
 - A. Monitoring economic activity.
 - B. Policy formulation.
 - C. Business decision-making.
 - D. Short-term economic forecasting.

BACKGROUND / CONTEXT

Why was ISP introduced?

India already publishes:

- **Index of Industrial Production (IIP)** – for industry.
- **Consumer Price Index (CPI)** – for inflation.
- However, until now there was **no monthly production index** for the services sector,

despite services contributing the largest share of India's economy.

The ISP fills this important data gap.

WHAT IS THE INDEX OF SERVICES PRODUCTION (ISP)?

- The ISP is a **high-frequency economic indicator** that measures changes in the output of selected organised service industries over time.

Objectives

- Monitor monthly service sector performance.
- Improve economic policy formulation.
- Complement the Index of Industrial Production.
- Provide timely data on economic momentum.
- Strengthen national statistical systems.

COVERAGE OF THE ISP

The trial index covers **19 organised service sub-sectors**, including:

- Transport.
- Warehousing.
- Information technology and computer services.
- Financial services.
- Professional services.
- Administrative services.
- Real estate-related services.
- Accommodation and food services.
- Other market services.

Some sectors such as **health and education are presently excluded** from the trial series because of data limitations.

BASE YEAR: 2024–25

The **base year** serves as the reference year against which future production levels are compared.

Changing the base year helps:

- Reflect structural changes in the economy.
- Improve data accuracy.
- Capture emerging sectors.
- Better represent current production patterns.

IMPORTANCE OF THE ISP

Economic Policy

- Helps governments assess short-term economic trends.
- Supports evidence-based policymaking.

Business

- Assists investors and businesses in understanding sectoral performance.
- Provides an early signal of changes in economic activity.

Statistics

- Complements GDP estimates and the IIP.
- Improves the quality of official economic statistics.

SIGNIFICANCE

Economic

- Better measurement of India's largest economic sector.
- Enables timely assessment of services-led growth.

Governance

- Supports fiscal and monetary policy decisions.
- Improves economic planning.

Research

- Provides richer datasets for economists and analysts.

KEY HIGHLIGHTS

- **Indicator:** Index of Services Production (ISP).
- **Released By:** Ministry of Statistics and Programme Implementation (MoSPI).
- **Reference Month:** May 2026.
- **Base Year:** 2024–25.
- **Coverage:** 19 organised service sub-sectors, representing about two-thirds of service-sector GVA.
- **Purpose:** High-frequency monitoring of service-sector production.

- **Strategic Importance:** Complements the IIP and strengthens India's economic statistics.
- **Challenges:** Limited data availability in certain service sectors and methodological complexity.
- **Way Forward:** Expand coverage, improve administrative data sources, and progressively include additional service industries.

PRELIMS BOOSTER BOX

- MoSPI:** Ministry of Statistics and Programme Implementation.
- ISP:** Index of Services Production—India's first monthly production index for the organised services sector.
- Base Year:** 2024–25.
- Purpose:** Measures short-term changes in services production.
- IIP:** Index of Industrial Production measures industrial output in mining, manufacturing, and electricity.
- GDP vs GVA:**
 - GVA (Gross Value Added):** Measures value created by producers.
 - GDP = GVA + Taxes on products – Subsidies on products.**
- Services Sector:** Contributes **more than half of India's GDP/GVA**, making it the largest sector of the economy.

PadhAI-GENERATED UPSC MCQ

Consider the following statements regarding the Index of Services Production (ISP):

1. It is released by the **Ministry of Statistics and Programme Implementation (MoSPI)**.
2. It is a **high-frequency monthly indicator** to measure the production of the organised services sector.
3. The trial series for 2026 uses **2024–25** as the base year.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

Answer: (d)

3. PARLIAMENT QUESTION: FUND DISBURSED / UTILIZED UNDER THE ANUSANDHAN NATIONAL RESEARCH FOUNDATION (ANRF)



- I. The Government has been progressively operationalising the **Anusandhan National Research Foundation (ANRF)** to:
 - A. Promote high-quality scientific research.
 - B. Encourage innovation across disciplines.
 - C. Strengthen academia-industry collaboration.
 - D. Enhance research infrastructure.
- II. Parliament was informed about:
 - A. Funds allocated.
 - B. Funds disbursed.
 - C. Utilisation status.
 - D. Measures for effective implementation and monitoring.

BACKGROUND / CONTEXT

Anusandhan National Research Foundation (ANRF)

- Established under the **Anusandhan National Research Foundation Act, 2023**.
- It replaces the proposed **National Research Foundation (NRF)** envisaged under the **National Education Policy (NEP) 2020**.
- Nodal Ministry:** Department of Science and Technology (DST), Ministry of Science and Technology.

Vision

To create a **strong research and innovation ecosystem** by supporting research across:

- Natural sciences.
- Engineering and technology.
- Social sciences.
- Humanities.
- Agriculture.
- Health sciences.
- Interdisciplinary research.

OBJECTIVES OF ANRF

- Promote a culture of research and innovation.
- Provide competitive research funding.
- Strengthen research capacity in universities.
- Encourage private sector participation in research.
- Improve collaboration between academia, industry, and government.
- Enhance India's global competitiveness in science and technology.

FUNDING UNDER ANRF

The Foundation supports:

- Research projects.
- Centres of Excellence.
- Infrastructure development.
- Innovation ecosystems.
- Capacity building.
- Young researchers and early-career scientists.
- Industry-linked research initiatives.

Funds are released based on:

- Approved projects.



- Institutional capacity.
- Programme guidelines.
- Periodic monitoring and utilisation certificates.

GOVERNANCE STRUCTURE

President of ANRF

- **Prime Minister of India**

Governing Board

Includes representatives from:

- Government.
- Academia.
- Industry.
- Scientific institutions.
- Research organisations.

SIGNIFICANCE

Scientific

- Promotes world-class research.
- Encourages interdisciplinary innovation.

Educational

- Strengthens research culture in universities.
- Supports faculty and student researchers.

Economic

- Drives innovation-led economic growth.
- Encourages technology development and commercialisation.

Strategic

- Supports India's vision of becoming a **global knowledge economy**.
- Enhances self-reliance in critical technologies under **Atmanirbhar Bharat**.

CHALLENGES

- Ensuring equitable distribution of research funding.
- Strengthening research capacity in State universities.
- Increasing private sector investment in R&D.
- Improving timely utilisation and monitoring of grants.

- Reducing regional disparities in research infrastructure.

WAY FORWARD

- Expand competitive grant opportunities.
- Encourage greater industry participation.
- Strengthen research infrastructure in emerging institutions.
- Improve digital monitoring of fund utilisation.
- Foster international research collaborations.
- Promote outcome-based evaluation of funded projects.

KEY HIGHLIGHTS

- **Institution:** Anusandhan National Research Foundation (ANRF).
- **Established Through:** ANRF Act, 2023.
- **Nodal Ministry:** Department of Science and Technology.
- **Objective:** Promote research, innovation, and scientific excellence.
- **Focus Areas:** Competitive funding, university research, industry collaboration, and interdisciplinary research.
- **Strategic Importance:** Supports India's transition to a knowledge-driven and innovation-led economy.
- **Challenges:** Funding efficiency, research quality, institutional capacity, and private sector participation.

PRELIMS BOOSTER BOX

- **ANRF: Anusandhan National Research Foundation.**
- **Established Under: Anusandhan National Research Foundation Act, 2023.**
- **Nodal Department: Department of Science and Technology (DST).**
- **Parent Ministry: Ministry of Science and Technology.**
- **Policy Basis: Recommended under the National Education Policy (NEP) 2020.**
- **President of ANRF: Prime Minister of India.**



- **Major Objective:** Strengthen research and innovation across higher educational institutions and research organisations.
- **Research Coverage:** Natural sciences, engineering, social sciences, humanities, agriculture, medicine, and interdisciplinary research.
- **NEP 2020:** Emphasises research, multidisciplinary education, innovation, and internationalisation of higher education.
- **R&D:** Research and Development, essential for technological advancement, economic competitiveness, and scientific progress.

PadhAI-GENERATED UPSC MCQ

Consider the following statements regarding the Anusandhan National Research Foundation (ANRF):

1. The ANRF was established under the **Anusandhan National Research Foundation Act, 2023**.
2. The **Department of Science and Technology** is the nodal department for ANRF.
3. The **Prime Minister of India** serves as the President of ANRF.

Which of the statements given above is/are correct?

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

Answer: (d)

4. PARLIAMENT QUESTION: RADIOACTIVE WASTES



- I. India follows a **closed nuclear fuel cycle**, in which valuable materials from spent nuclear fuel are recovered and reused.
- II. Radioactive waste is:
 - A. Classified based on its radioactivity level.
 - B. Treated and conditioned before storage or disposal.
 - C. Managed under stringent oversight by the **Atomic Energy Regulatory Board (AERB)**.
- III. The objective is to protect:
 - A. Human health.
 - B. Workers.
 - C. The public.
 - D. The environment.

BACKGROUND / CONTEXT

What is Radioactive Waste?

- Radioactive waste refers to materials containing **radioactive substances** that are no longer useful and require careful management because they emit **ionising radiation**.

Major Sources

- Nuclear power plants.
- Nuclear fuel reprocessing.
- Research reactors.



- Medical applications (radiotherapy, nuclear medicine).
- Industrial radiography.
- Scientific research laboratories.

CLASSIFICATION OF RADIOACTIVE WASTE

Category	Characteristics	Examples
Low-Level Waste (LLW)	Low radioactivity; short-lived	Protective clothing, laboratory waste, filters
Intermediate-Level Waste (ILW)	Higher radioactivity; requires shielding	Reactor components, resins, sludges
High-Level Waste (HLW)	Highly radioactive; generates heat	Waste from reprocessing of spent nuclear fuel

RADIOACTIVE WASTE MANAGEMENT IN INDIA

Closed Nuclear Fuel Cycle

India follows a **closed fuel cycle**, which involves:

- Reprocessing spent fuel.
- Recovering usable uranium and plutonium.
- Recycling fuel for further use.
- Reducing the quantity of high-level waste requiring disposal.

Waste Management Process

Segregation

Waste is separated according to:

- Radioactivity.
- Physical state.
- Half-life.

Treatment

Processes include:

- Volume reduction.

- Chemical treatment.
- Decontamination.
- Immobilisation.

Conditioning

- Waste is converted into stable forms suitable for storage and disposal.

Storage and Disposal

- Low- and intermediate-level waste is disposed of in engineered near-surface disposal facilities.
- High-level waste is first stored safely to allow radioactive decay and heat reduction before long-term disposal.

REGULATORY FRAMEWORK

Atomic Energy Regulatory Board (AERB)

- I. Established in **1983**.
- II. Responsible for regulating:
 - A. Radiation safety.
 - B. Nuclear safety.
 - C. Radioactive waste management.

Functions

- Licensing.
- Inspection.
- Safety standards.
- Monitoring compliance.

Department of Atomic Energy (DAE)

- I. Overall responsibility for India's nuclear programme.
- II. Oversees:
 - A. Nuclear power.
 - B. Fuel cycle activities.
 - C. Research and development.
 - D. Waste management.

LEGAL FRAMEWORK

Atomic Energy Act, 1962

Provides for:

- Development and control of atomic energy.
- Safe handling of radioactive materials.

- Radiation protection.

INTERNATIONAL FRAMEWORK

International Atomic Energy Agency (IAEA)

- I. Headquarters: **Vienna, Austria.**
- II. Promotes:
 - A. Safe and peaceful use of nuclear technology.
 - B. International nuclear safety standards.
 - C. Radioactive waste management guidelines.

India follows IAEA safety principles in managing radioactive waste.

SIGNIFICANCE

Environmental

- Prevents contamination of soil, air, and water.
- Protects ecosystems.

Health

- Minimises radiation exposure.
- Safeguards workers and nearby communities.

Energy Security

- Supports sustainable nuclear power generation.
- Enables efficient utilisation of nuclear fuel.

Strategic

- Strengthens India's civil nuclear programme.
- Builds confidence in nuclear energy as a clean energy source.

CHALLENGES

- Long-term management of high-level waste.
- Public perception regarding nuclear safety.
- High infrastructure and monitoring costs.
- Need for continuous technological advancement.

WAY FORWARD

- Strengthen research in advanced waste disposal technologies.
- Expand geological disposal research.

- Enhance public awareness and transparency.
- Continue adherence to international safety standards.
- Improve monitoring using advanced digital technologies.

KEY HIGHLIGHTS

- **Nodal Department:** Department of Atomic Energy (DAE).
- **Regulator:** Atomic Energy Regulatory Board (AERB).
- **Legal Framework:** Atomic Energy Act, 1962.
- **Waste Categories:** Low-Level, Intermediate-Level, and High-Level Waste.
- **Fuel Cycle:** India follows a **closed nuclear fuel cycle**.
- **Strategic Importance:** Ensures safe utilisation of nuclear energy while protecting public health and the environment.

PRELIMS BOOSTER BOX

- **Atomic Energy Act, 1962:** Governs the development, control, and safe use of atomic energy in India.
- **Department of Atomic Energy (DAE):** Established in **1954**; responsible for India's nuclear energy programme.
- **Atomic Energy Regulatory Board (AERB):** Established in **1983** to regulate nuclear and radiation safety.
- **BARC: Bhabha Atomic Research Centre,** Mumbai—the premier nuclear research institution under the DAE.
- **Closed Nuclear Fuel Cycle:** Involves reprocessing spent nuclear fuel to recover usable fissile materials for reuse.
- **Spent Nuclear Fuel:** Used nuclear reactor fuel that is removed from a reactor after its useful life.
- **High-Level Waste (HLW):** Highly radioactive waste requiring cooling, shielding, and long-term management.

- **IAEA: International Atomic Energy Agency**, headquartered in **Vienna, Austria**.
- **Three-Stage Nuclear Power Programme:** India's long-term strategy involving natural uranium, fast breeder reactors, and thorium-based reactors.

PadhAI-GENERATED UPSC MCQ

Consider the following statements regarding radioactive waste management in India:

1. India follows a **closed nuclear fuel cycle**, allowing recovery and reuse of valuable nuclear materials.
2. The **Atomic Energy Regulatory Board (AERB)** regulates nuclear and radiation safety in India.
3. The **International Atomic Energy Agency (IAEA)** is headquartered in **Vienna, Austria**.

Which of the statements given above is/are correct?

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

Answer: (d)

5. COAL EXCHANGE RULES



- I. The Coal Exchange Rules provide the legal framework for setting up and regulating a **Coal Exchange** in India.
- II. The exchange will facilitate:
 - A. Transparent buying and selling of coal.
 - B. Efficient price discovery.

- C. Wider participation of buyers and sellers.
- D. Improved logistics and supply chain efficiency.

- III. The reforms complement the Government's broader agenda of **commercial coal mining** and enhancing private sector participation.

BACKGROUND / CONTEXT

Coal Sector in India

Coal remains India's primary source of energy and is widely used for:

- Electricity generation.
- Steel production.
- Cement manufacturing.
- Fertiliser production.
- Various industrial processes.

India possesses the **fifth-largest coal reserves** in the world and is among the largest producers and consumers of coal.

WHAT IS A COAL EXCHANGE?

A **Coal Exchange** is an organised electronic trading platform where:

- Coal producers.
- Commercial miners.
- Coal importers.
- Consumers.
- Traders.

can buy and sell coal through transparent market-based mechanisms.

OBJECTIVES OF THE COAL EXCHANGE RULES

- Improve transparency in coal trading.
- Enable competitive market-based pricing.
- Increase efficiency in coal allocation.
- Reduce transaction costs.
- Promote ease of doing business.
- Encourage private investment in the coal sector.

KEY FEATURES OF THE RULES

Electronic Trading Platform

- Online trading mechanism.
- Transparent bidding process.
- Standardised contracts.

Price Discovery

- Prices determined through market demand and supply.
- Reduces dependence on administrative pricing.

Market Participants

Eligible participants may include:

- Coal mining companies.
- Commercial miners.
- Power producers.
- Steel companies.
- Cement manufacturers.
- Other industrial consumers.

Regulatory Oversight

The Rules provide for:

- Registration of market participants.
- Operational standards.
- Market surveillance.
- Dispute resolution mechanisms.
- Compliance requirements.

RELATED REFORMS IN THE COAL SECTOR

Commercial Coal Mining

- Introduced in **2020**.
- Allows private companies to mine and sell coal commercially without end-use restrictions.

Coal Mines (Special Provisions) Act, 2015

- Governs allocation and auction of coal mines.
- Ensures transparent allocation.

Coal Bearing Areas (Acquisition and Development) Act, 1957

- Facilitates acquisition of land for coal mining.

SIGNIFICANCE

Economic

- Improves efficiency of coal markets.
- Encourages investment.
- Enhances competition.

Energy Security

- Ensures better availability of coal.
- Strengthens domestic supply chains.

Governance

- Promotes transparency.
- Reduces information asymmetry.
- Supports digital governance.

Industrial Growth

- Benefits power, steel, cement, and manufacturing sectors through more efficient coal procurement.

CHALLENGES

- Developing robust trading infrastructure.
- Ensuring participation by all stakeholders.
- Managing price volatility.
- Integrating logistics and transportation systems.
- Maintaining regulatory oversight and market integrity.

WAY FORWARD

- Expand digital trading infrastructure.
- Integrate rail and logistics information with the exchange.
- Promote standardised coal quality certification.
- Encourage wider participation from commercial miners.
- Strengthen market surveillance and consumer protection.

KEY HIGHLIGHTS

- **Rules:** Coal Exchange Rules.
- **Nodal Ministry:** Ministry of Coal.
- **Purpose:** Establish an organised and transparent coal trading platform.



- **Major Benefits:** Competitive pricing, efficient allocation, transparency, and improved market efficiency.
- **Supporting Reforms:** Commercial coal mining, transparent coal block auctions, and digital governance.
- **Strategic Importance:** Enhances India's energy security and supports the vision of an efficient and competitive coal market.

PRELIMS BOOSTER BOX

- **Ministry of Coal:** Responsible for the administration and development of India's coal sector.
- **Coal India Limited (CIL):** A **Maharatna Central Public Sector Enterprise (CPSE)** and the world's largest coal-producing company.
- **Commercial Coal Mining:** Introduced in **2020**, allowing private companies to mine and sell coal without end-use restrictions.
- **Coal Mines (Special Provisions) Act, 2015:** Provides for transparent allocation of coal mines through auctions.
- **Coal Bearing Areas (Acquisition and Development) Act, 1957:** Enables acquisition of land for coal mining and related activities.
- **National Coal Index (NCI):** A price index published by the Ministry of Coal to reflect changes in coal prices in India.
- **Major Coal Types:** Anthracite, Bituminous, Sub-bituminous, and Lignite.
- **Largest Coal-Producing State:** Odisha (followed by Chhattisgarh and Jharkhand in recent years).
- **Largest Consumer of Coal:** The **power sector**, particularly thermal power generation.

PadhAI-GENERATED UPSC MCQ

Consider the following statements regarding the Coal Exchange Rules:

1. They seek to establish an organised electronic platform for transparent coal trading.

2. One of their objectives is to facilitate market-based price discovery for coal.
3. The Ministry of Coal is the nodal ministry responsible for implementing these rules.

Which of the statements given above is/are correct?

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

Answer: (d)

1. AFFORDABLE NUTRITION FOR EVERY INDIAN: JAN AUSHADHI NUTRACEUTICALS



- I. Jan Aushadhi Kendras now offer a range of **nutraceutical products** in addition to affordable generic medicines.
- II. The initiative seeks to:
 - A. Improve nutritional outcomes.
 - B. Reduce out-of-pocket healthcare expenditure.
 - C. Promote preventive healthcare.
 - D. Increase access to quality nutrition supplements across the country.
- III. These products are available at prices significantly lower than many comparable branded alternatives.

BACKGROUND / CONTEXT

What are Nutraceuticals?

Nutraceuticals are products derived from food sources that provide **health or medical benefits** beyond basic nutrition.

They may help in:

- Maintaining overall health.
- Preventing nutritional deficiencies.
- Supporting immunity.
- Promoting healthy ageing.
- Improving general well-being.

Examples

- Multivitamins.
- Mineral supplements.
- Calcium tablets.
- Iron and folic acid supplements.
- Protein supplements.
- Omega-3 fatty acids.
- Probiotics.

PRADHAN MANTRI BHARTIYA JANAUSHADHI PARIYOJANA (PMBJP)

Launch

- Originally launched in **2008** as the **Jan Aushadhi Scheme**.
- Revamped and renamed as the **Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP)** in **2015**.

Implementing Agency

- **Pharmaceuticals & Medical Devices Bureau of India (PMBI)**.
- Under the **Department of Pharmaceuticals, Ministry of Chemicals and Fertilizers**.

OBJECTIVES OF PMBJP

- Provide quality generic medicines at affordable prices.
- Reduce healthcare expenditure.
- Promote rational use of medicines.
- Improve access to healthcare in urban and rural areas.
- Expand availability of affordable nutraceuticals.

KEY FEATURES OF JAN AUSHADHI NUTRACEUTICALS

Affordable Pricing

- Products are offered at substantially lower prices than many branded alternatives.

Quality Assurance

Products undergo:

- Quality testing.
- Compliance with prescribed standards.



- Regulatory approvals before being supplied through Jan Aushadhi Kendras.

Wide Accessibility

- Available through thousands of **Jan Aushadhi Kendras** across India, improving access in both urban and rural areas.

Preventive Healthcare

Supports:

- Healthy lifestyles.
- Nutritional supplementation.
- Management of deficiencies.
- Public health promotion.

BENEFICIARIES

The initiative benefits:

- Senior citizens.
- Women.
- Children.
- Pregnant and lactating mothers.
- Persons with nutritional deficiencies.
- Low-income households.
- Patients requiring long-term nutritional supplementation.

SIGNIFICANCE

Health

- Promotes preventive healthcare.
- Supports better nutrition.
- Reduces micronutrient deficiencies.

Economic

- Lowers out-of-pocket expenditure.
- Makes nutritional supplements affordable.

Social

- Enhances nutritional equity.
- Improves access among economically weaker sections.

Public Health

- Complements national nutrition initiatives.
- Supports healthier communities.

RELATED GOVERNMENT INITIATIVES

POSHAN Abhiyaan

- National Nutrition Mission aimed at reducing malnutrition.

Saksham Anganwadi & POSHAN 2.0

- Focuses on nutrition support for women and children.

Ayushman Bharat

- Strengthens primary healthcare through **Ayushman Arogya Mandirs**.

National Health Mission (NHM)

- Supports maternal, child, and community health programmes.

KEY HIGHLIGHTS

- **Programme:** Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP).
- **Implementing Agency:** Pharmaceuticals & Medical Devices Bureau of India (PMBI).
- **Nodal Ministry:** Ministry of Chemicals and Fertilizers.
- **Focus:** Affordable nutraceuticals and generic medicines.
- **Objective:** Improve nutrition, preventive healthcare, and affordability.
- **Strategic Importance:** Supports Universal Health Coverage and nutritional security.
- **Challenges:** Public awareness, supply chain management, and ensuring availability in remote areas.
- **Way Forward:** Expand Jan Aushadhi Kendras, strengthen awareness campaigns, ensure uninterrupted supply, and integrate nutraceutical awareness with national nutrition programmes.

PRELIMS BOOSTER BOX

- **PMBJP:** Pradhan Mantri Bhartiya Janaushadhi Pariyojana.
- **Implementing Agency:** Pharmaceuticals & Medical Devices Bureau of India (PMBI).



- **Parent Department: Department of Pharmaceuticals.**
- **Parent Ministry: Ministry of Chemicals and Fertilizers.**
- **Jan Aushadhi Kendras:** Retail outlets providing affordable quality generic medicines and selected nutraceutical products.
- **Generic Medicines:** Medicines with the same active ingredient, dosage, safety, and efficacy as branded medicines but sold at lower prices.
- **Nutraceutical:** A food-derived product offering health benefits beyond basic nutrition.
- **POSHAN Abhiyaan:** Launched in **2018** to improve nutritional outcomes among women and children.
- **Universal Health Coverage (UHC):** Ensures access to quality healthcare services without financial hardship.
- **Preventive Healthcare:** Focuses on disease prevention and health promotion rather than treatment alone.

PadhAI-GENERATED UPSC MCQ

Consider the following statements regarding Jan Aushadhi Nutraceuticals:

1. They are provided under the **Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP)**.
2. The programme is implemented by the **Pharmaceuticals & Medical Devices Bureau of India (PMBI)**.
3. One of the objectives is to improve access to affordable nutritional supplements and promote preventive healthcare.

Which of the statements given above is/are correct?

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

Answer: (d)

2. A DELEGATION FROM BASTAR MANDAL CALLS ON THE PRESIDENT



- I. The President interacted with representatives from **Bastar Mandal**, appreciating:
 - A. The rich tribal heritage of Bastar.
 - B. Traditional knowledge systems.
 - C. Indigenous arts and crafts.
 - D. Contributions of tribal communities to environmental conservation.
- II. The meeting reaffirmed the Government's emphasis on:
 - A. Tribal welfare.
 - B. Education.
 - C. Livelihood enhancement.
 - D. Cultural preservation.
 - E. Inclusive development.

BACKGROUND / CONTEXT

Bastar Region

- I. Located in the southern part of **Chhattisgarh**.
- II. Known for:
 - A. Dense forests.
 - B. Rich biodiversity.
 - C. Distinct tribal traditions.
 - D. Handicrafts and metalwork.
 - E. Cultural festivals.

Major Tribal Communities

- Gond

- Maria
- Muria
- Halba
- Bhatra
- Dhurwa

These communities possess rich traditions in:

- Art.
- Music.
- Dance.
- Forest-based livelihoods.
- Sustainable natural resource management.

TRIBAL WELFARE INITIATIVES

Ministry of Tribal Affairs

The nodal ministry responsible for:

- Tribal development.
- Educational support.
- Livelihood promotion.
- Socio-economic empowerment.

PM JANMAN

Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan

- I. Launched in **2023**.
- II. Focuses on the development of **Particularly Vulnerable Tribal Groups (PVTGs)**.
- III. Covers:
 - A. Housing.
 - B. Roads.
 - C. Drinking water.
 - D. Education.
 - E. Healthcare.
 - F. Connectivity.

Eklavya Model Residential Schools (EMRS)

- Provide quality residential education to tribal students.
- Aim to improve educational outcomes in Scheduled Areas.

Pradhan Mantri Van Dhan Yojana

- Promotes value addition to **Minor Forest Produce (MFP)**.

- Enhances income of tribal gatherers.
- Encourages tribal entrepreneurship.

CULTURAL IMPORTANCE OF BASTAR

Bastar is renowned for:

Bastar Dussehra

- One of India's longest cultural festivals.
- Celebrated for over **75 days**.
- Distinct from the conventional Dussehra celebrations elsewhere in India.

Traditional Crafts

- Bell metal (Dhokra) craft.
- Wood carving.
- Bamboo products.
- Tribal textiles.
- Iron craft.

These crafts provide important livelihood opportunities and preserve indigenous knowledge.

SIGNIFICANCE

Social

- Strengthens recognition of tribal identity.
- Encourages inclusive governance.

Cultural

- Preserves India's indigenous traditions.
- Promotes tribal heritage nationally.

Economic

- Supports tribal artisans.
- Encourages sustainable livelihoods and eco-tourism.

Environmental

- Recognises the role of tribal communities in biodiversity conservation and sustainable forest management.

KEY HIGHLIGHTS

- **Occasion:** Delegation from Bastar Mandal met the President of India.
- **Location:** Rashtrapati Bhavan, New Delhi.



- **Focus:** Tribal empowerment, cultural heritage, education, and inclusive development.
- **Major Region:** Bastar, Chhattisgarh.
- **Strategic Importance:** Promotes tribal welfare while preserving India's cultural diversity.
- **Challenges:** Education gaps, healthcare access, infrastructure, livelihood opportunities, and market access for tribal products.
- **Way Forward:** Strengthen tribal education, improve connectivity, expand livelihood programmes, promote GI-tagged tribal products, and enhance community-led conservation initiatives.

PRELIMS BOOSTER BOX

- **Bastar:** Tribal-dominated region in **Chhattisgarh**, known for forests, handicrafts, and indigenous culture.
- **Scheduled Tribes (STs):** Recognised under **Article 342** of the Constitution.
- **Fifth Schedule:** Deals with the administration and control of **Scheduled Areas** and Scheduled Tribes in most mainland states.
- **Ministry of Tribal Affairs:** Established in **1999**.
- **PM JANMAN:** Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan, launched in **2023** for the development of **Particularly Vulnerable Tribal Groups (PVTGs)**.
- **Eklavya Model Residential Schools (EMRS):** Residential schools for tribal students.
- **Van Dhan Yojana:** Promotes value addition and marketing of **Minor Forest Produce (MFP)**.
- **Minor Forest Produce (MFP):** Includes bamboo, honey, lac, tendu leaves, medicinal plants, and other non-timber forest products.
- **Bastar Dussehra:** One of the world's longest cultural festivals, celebrated for approximately **75 days**.
- **Dhokra Art:** Traditional lost-wax metal casting craft widely practiced in Bastar.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. **Article 342** of the Constitution relates to the specification of **Scheduled Tribes**.
2. **PM JANMAN** focuses on the development of **Particularly Vulnerable Tribal Groups (PVTGs)**.
3. **Bastar Dussehra** is one of the longest cultural festivals celebrated in India.

Which of the statements given above is/are correct?

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

Answer: (d)

3. PARLIAMENT QUESTION: HUMAN SPACEFLIGHT AND INDIGENOUS SPACE TECHNOLOGY





- I. India is making significant progress towards launching its **first indigenous human spaceflight mission (Gaganyaan)**.
- II. The programme focuses on:
 - A. Human-rated launch vehicles.
 - B. Crew safety systems.
 - C. Indigenous space technologies.
 - D. Astronaut training.
 - E. Advanced space infrastructure.
- III. The initiative supports the vision of **Atmanirbhar Bharat** and strengthens India's position as a leading global space power.

BACKGROUND / CONTEXT

Gaganyaan Mission

- **Announced:** 2018 by the Prime Minister.
- **Implementing Agency:** Indian Space Research Organisation (ISRO).
- **Objective:** Demonstrate India's capability to send a crew into **Low Earth Orbit (LEO)** and safely return them to Earth.

Mission Profile

- Carry a crew of Indian astronauts (**Gaganyatris**) into orbit.
- Orbit at approximately **400 km** altitude.
- Mission duration of about **3 days**.
- Safe splashdown in the sea after re-entry.

KEY INDIGENOUS TECHNOLOGIES

Human-Rated LVM3 Launch Vehicle

- Modified version of the **Launch Vehicle Mark-3 (LVM3)**.
- Enhanced reliability and safety for carrying astronauts.

Crew Escape System (CES)

- Enables rapid separation of the crew module during emergencies.
- Protects astronauts during launch failures.

Crew Module

- I. Designed and developed indigenously.

- II. Equipped with:

- A. Life-support systems.
- B. Environmental control.
- C. Navigation and communication systems.

Service Module

Provides:

- Propulsion.
- Power supply.
- Thermal control.
- Mission support.

Environmental Control and Life Support System (ECLSS)

Maintains:

- Oxygen supply.
- Cabin pressure.
- Temperature.
- Humidity.
- Removal of carbon dioxide and contaminants.

ASTRONAUT TRAINING

Indian astronauts undergo training in:

- Space medicine.
- Survival techniques.
- Microgravity adaptation.
- Spacecraft operations.
- Emergency response.

Training is supported by:

- ISRO.
- International collaborations.
- Astronaut training facilities in India.

SIGNIFICANCE OF INDIGENOUS SPACE TECHNOLOGY

Strategic

- Strengthens national security.
- Reduces dependence on foreign technology.
- Enhances strategic autonomy.

Scientific



- Advances indigenous research.
- Encourages innovation in aerospace engineering.

Economic

- Supports the growth of India's space economy.
- Promotes private sector participation.
- Encourages high-technology manufacturing.

Technological

- I. Builds capabilities in:
 - A. Robotics.
 - B. Materials science.
 - C. Artificial intelligence.
 - D. Advanced electronics.
 - E. Precision manufacturing.

RELATED SPACE REFORMS

Indian Space Policy, 2023

Encourages:

- Private sector participation.
- Commercialisation of space activities.
- Innovation.
- International collaboration.

IN-SPACE

Indian National Space Promotion and Authorization Centre

- Facilitates private participation.
- Authorises non-governmental space activities.

NewSpace India Limited (NSIL)

- Commercial arm of ISRO.
- Promotes commercial utilisation of Indian space technologies.

KEY HIGHLIGHTS

- **Mission:** Gaganyaan.
- **Implementing Agency:** Indian Space Research Organisation (ISRO).
- **Objective:** Demonstrate indigenous human spaceflight capability.
- **Launch Vehicle:** Human-rated LVM3.

- **Major Technologies:** Crew Module, Crew Escape System, Service Module, Environmental Control and Life Support System.
- **Supporting Reforms:** Indian Space Policy 2023, IN-SPACe, NSIL.
- **Strategic Importance:** Strengthens India's technological self-reliance and global space leadership.
- **Challenges:** Human-rating standards, mission safety, advanced life-support technologies, and long-term space missions.
- **Way Forward:** Continue technology development, strengthen industry participation, expand astronaut training, and pursue future missions such as the **Bharatiya Antariksh Station** and crewed lunar exploration.

PRELIMS BOOSTER BOX

- **ISRO: Indian Space Research Organisation**, established in **1969**.
- **Gaganyaan:** India's first indigenous human spaceflight mission.
- **Gaganyatri:** The term used for Indian astronauts participating in the Gaganyaan mission.
- **LVM3 (Launch Vehicle Mark-3):** ISRO's heavy-lift launch vehicle used for the Gaganyaan programme.
- **Crew Escape System (CES):** Emergency escape mechanism to protect astronauts during launch failures.
- **ECLSS: Environmental Control and Life Support System**, maintains a habitable environment inside the spacecraft.
- **Low Earth Orbit (LEO):** Generally extends up to about **2,000 km** above Earth; Gaganyaan is planned to operate at around **400 km**.
- **IN-SPACe:** Indian National Space Promotion and Authorization Centre, established to promote and regulate private participation in space activities.

- **NSIL: NewSpace India Limited**, the commercial arm of ISRO.
- **Indian Space Policy, 2023:** Provides the framework for expanding India's space ecosystem through greater private sector participation and commercialisation.

PadhAI-GENERATED UPSC MCQ

Consider the following statements regarding India's Human Spaceflight Programme:

1. **Gaganyaan** aims to demonstrate India's capability to send astronauts into **Low Earth Orbit** and return them safely.
2. The **Crew Escape System (CES)** is designed to protect astronauts during launch emergencies.
3. **IN-SPACe** has been established to promote and authorise private sector participation in India's space activities.

Which of the statements given above is/are correct?

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

Answer: (d)

4. NATIONAL ADVISORY BOARD ON MANAGEMENT OF GENETIC RESOURCES CHARTS ROADMAP FOR STRENGTHENING INDIA'S AGROBIODIVERSITY CONSERVATION AND SUSTAINABLE UTILIZATION



- The meeting focused on:
 - A. Conservation of plant, animal, fish, and microbial genetic resources.
 - B. Sustainable utilization of agrobiodiversity.
 - C. Strengthening national gene banks.
 - D. Enhancing climate resilience in agriculture.
 - E. Supporting farmers through improved conservation and breeding programmes.
- The roadmap aligns with India's commitments under international biodiversity agreements and national food security objectives.

BACKGROUND / CONTEXT

What are Genetic Resources?

Genetic resources are biological materials containing genetic information with actual or potential value for:

- Agriculture.
- Food production.



- Forestry.
- Fisheries.
- Medicine.
- Scientific research.

Examples

- Traditional crop varieties.
- Indigenous livestock breeds.
- Wild relatives of cultivated crops.
- Microorganisms.
- Medicinal plants.

WHAT IS AGROBIODIVERSITY?

Agrobiodiversity refers to the diversity of:

- Crops.
- Livestock.
- Fisheries.
- Forest species.
- Soil organisms.
- Pollinators.

that support agricultural production and food systems.

IMPORTANCE OF AGROBIODIVERSITY

Food Security

- Ensures availability of diverse food crops.
- Reduces dependence on a limited number of varieties.

Climate Resilience

- Provides drought-, flood-, and pest-resistant varieties.
- Supports adaptation to climate change.

Nutritional Security

- Encourages cultivation of nutrient-rich traditional crops.
- Improves dietary diversity.

Economic Benefits

- Supports farmers' livelihoods.
- Conserves valuable indigenous genetic resources.

NATIONAL ADVISORY BOARD ON MANAGEMENT OF GENETIC RESOURCES

Role

The Board advises on:

- Conservation strategies.
- Sustainable use of genetic resources.
- Policy development.
- Coordination among research institutions.
- National priorities for biodiversity management.

KEY INSTITUTIONS

Indian Council of Agricultural Research (ICAR)

- Apex body for agricultural research in India.
- Coordinates research on crop improvement and genetic resources.

National Bureau of Plant Genetic Resources (NBPGR)

- I. Located in **New Delhi**.
- II. Functions under **ICAR**.
- III. Maintains India's National Gene Bank.
- IV. Conserves:
 - A. Seeds.
 - B. Plant germplasm.
 - C. Wild crop relatives.

National Bureau of Animal Genetic Resources (NBAGR)

- Located in **Karnal, Haryana**.
- Conserves indigenous livestock genetic resources.

GENE BANKS

Gene banks preserve genetic material through:

- Seed storage.
- Cryopreservation.
- Tissue culture.
- Field gene banks.

They safeguard valuable genetic diversity for future breeding and research.

LEGAL & POLICY FRAMEWORK

Biological Diversity Act, 2002

Provides for:

- Conservation of biodiversity.
- Sustainable use of biological resources.
- Fair and equitable sharing of benefits.

Protection of Plant Varieties and Farmers' Rights (PPV&FR) Act, 2001

Protects:

- Plant breeders' rights.
- Farmers' rights.
- Traditional varieties.

National Biodiversity Authority (NBA)

- Established under the Biological Diversity Act, 2002.
- Regulates access to biological resources and associated traditional knowledge.

INTERNATIONAL FRAMEWORK

Convention on Biological Diversity (CBD)

- I. Adopted in **1992**.
- II. Objectives:
 - A. Conservation of biodiversity.
 - B. Sustainable use.
 - C. Fair and equitable benefit sharing.

International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)

Promotes:

- Conservation.
- Sustainable use.
- Access and benefit sharing for plant genetic resources.

SIGNIFICANCE

Agricultural

- Strengthens crop breeding.
- Improves productivity.
- Enhances resilience.

Environmental

- Conserves biodiversity.
- Protects ecosystems.

Economic

- Supports sustainable agriculture.
- Promotes bio-economy.

Strategic

- Strengthens India's food and nutritional security.
- Supports climate-resilient farming systems.

CHALLENGES

- Genetic erosion.
- Habitat degradation.
- Climate change.
- Loss of indigenous crop varieties.
- Limited awareness regarding conservation.

WAY FORWARD

- Expand national gene banks.
- Strengthen in-situ and ex-situ conservation.
- Promote traditional crop varieties.
- Encourage participatory breeding programmes.
- Strengthen digital documentation of genetic resources.
- Enhance benefit-sharing mechanisms for farming communities.

KEY HIGHLIGHTS

- **Focus:** Conservation and sustainable utilization of genetic resources.
- **Major Institutions:** ICAR, NBPGR, NBAGR, National Biodiversity Authority.
- **Legal Framework:** Biological Diversity Act, 2002; PPV&FR Act, 2001.
- **Strategic Importance:** Supports food security, climate resilience, and biodiversity conservation.
- **Challenges:** Genetic erosion, climate change, and habitat loss.



- **Way Forward:** Strengthen conservation infrastructure, promote indigenous varieties, and enhance farmer participation.

PRELIMS BOOSTER BOX

- **Agrobiodiversity:** Diversity of crops, livestock, aquatic species, soil organisms, and associated ecosystems used in agriculture.
- **Genetic Resources:** Biological material containing genetic information of actual or potential value.
- **ICAR: Indian Council of Agricultural Research,** India's apex agricultural research organisation.
- **NBPGR: National Bureau of Plant Genetic Resources,** New Delhi; maintains India's National Gene Bank.
- **NBAGR: National Bureau of Animal Genetic Resources,** Karnal, Haryana.
- **Gene Bank:** Facility for long-term conservation of seeds, tissues, pollen, and other genetic materials.
- **Biological Diversity Act, 2002:** Provides for conservation, sustainable use, and benefit sharing of biological resources.
- **National Biodiversity Authority (NBA):** Headquartered in **Chennai**.
- **PPV&FR Act, 2001:** Protects breeders' and farmers' rights over plant varieties.
- **Convention on Biological Diversity (CBD):** International treaty adopted at the **Rio Earth Summit (1992)**.
- **ITPGRFA:** International Treaty on Plant Genetic Resources for Food and Agriculture, adopted under the **Food and Agriculture Organization (FAO)**.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The **National Bureau of Plant Genetic Resources (NBPGR)** functions under the **Indian Council of Agricultural Research (ICAR)**.

2. The **Biological Diversity Act, 2002** provides for the conservation and sustainable use of biological resources in India.
3. The **National Biodiversity Authority (NBA)** is headquartered in **Chennai**.

Which of the statements given above is/are correct?

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

Answer: (d)

5. PUBLIC LIBRARIES IN INDIA



- I. Public libraries serve as community knowledge centres by providing:
 - A. Free access to books and learning resources.
 - B. Digital information services.
 - C. Educational support.
 - D. Cultural and research materials.
- II. The Government supports library development through:

- A. Financial assistance.
- B. Digitisation initiatives.
- C. Capacity building.
- D. Modernisation of library infrastructure.

BACKGROUND / CONTEXT

What is a Public Library?

A **public library** is a publicly funded institution that provides **free or affordable access** to:

- Books.
- Newspapers and magazines.
- Digital resources.
- Educational materials.
- Research publications.
- Community learning programmes.

Public libraries are open to all members of society regardless of age, gender, caste, religion, or economic status.

OBJECTIVES OF PUBLIC LIBRARIES

- Promote literacy and reading habits.
- Support school and higher education.
- Encourage lifelong learning.
- Preserve cultural heritage.
- Bridge the digital divide.
- Provide access to authentic information.

CONSTITUTIONAL PROVISIONS

State Subject

- **Libraries** fall under the **State List (List II)** of the **Seventh Schedule** of the Constitution.
- Therefore, the primary responsibility for establishing and maintaining public libraries lies with **State Governments**.

The Union Government supports libraries through various schemes and institutions.

MAJOR NATIONAL INSTITUTIONS

National Library of India

- Located in **Kolkata, West Bengal**.
- India's **largest public library**.
- Functions under the **Ministry of Culture**.

- Acts as the national repository of books and publications.

Raja Rammohun Roy Library Foundation (RRRLF)

- Established in **1972**.
- Headquarters: **Kolkata**.
- Autonomous organisation under the **Ministry of Culture**.

Functions

- Financial assistance to public libraries.
- Library modernisation.
- Capacity building.
- Promotion of library services across India.

GOVERNMENT INITIATIVES

National Mission on Libraries (NML)

Launched to:

- Modernise libraries.
- Improve infrastructure.
- Digitise collections.
- Develop professional skills of library personnel.
- Enhance public access to knowledge resources.

Digital Library Initiatives

Government initiatives encourage:

- Digitisation of manuscripts.
- Online catalogues.
- Digital repositories.
- E-learning resources.
- Remote access to library collections.

IMPORTANCE OF PUBLIC LIBRARIES

Educational

- Support students and researchers.
- Provide learning materials.
- Encourage reading culture.

Social

- Promote inclusive access to information.
- Serve disadvantaged communities.

Cultural



- Preserve manuscripts and historical documents.
- Promote local languages and literature.

Economic

- Enhance employability through skill development resources.
- Support entrepreneurship and lifelong learning.

CHALLENGES

- Inadequate funding.
- Poor infrastructure in rural areas.
- Limited digital resources.
- Shortage of trained librarians.
- Low public awareness and library usage.

WAY FORWARD

- Increase investment in library infrastructure.
- Expand digital library services.
- Strengthen community outreach programmes.
- Promote reading campaigns.
- Improve accessibility for persons with disabilities.
- Enhance collaboration with schools, universities, and local communities.

KEY HIGHLIGHTS

- **Subject:** Public Libraries.
- **Constitutional Status:** State List (Seventh Schedule).
- **Largest Public Library:** National Library of India, Kolkata.
- **Nodal Ministry (National Library & RRRLF):** Ministry of Culture.
- **Major Institution:** Raja Rammohun Roy Library Foundation (RRRLF).
- **Flagship Initiative:** National Mission on Libraries (NML).
- **Strategic Importance:** Promotes literacy, digital inclusion, lifelong learning, and preservation of cultural heritage.
- **Challenges:** Funding, infrastructure, digitisation, and awareness.

- **Way Forward:** Modernisation, digitisation, and stronger community engagement.

PRELIMS BOOSTER BOX

- Libraries:** Included in the **State List (List II)** under the **Seventh Schedule** of the Constitution.
- National Library of India:** Located in **Kolkata, West Bengal**; India's largest public library.
- Ministry of Culture:** Nodal ministry for the National Library and several national library initiatives.
- Raja Rammohun Roy Library Foundation (RRRLF):**
 - Established: **1972**
 - Headquarters: **Kolkata**
 - Supports development and modernisation of public libraries.
- National Mission on Libraries (NML):** Focuses on modernising libraries, digitisation, and improving access to knowledge resources.
- Delivery of Books and Newspapers (Public Libraries) Act, 1954:** Requires publishers to deposit copies of publications with designated national libraries, helping preserve India's published heritage.
- Digital Libraries:** Facilitate online access to books, journals, manuscripts, and educational resources.

PadhAI-GENERATED UPSC MCQ

Consider the following statements regarding public libraries in India:

- Libraries** are included in the **State List** of the Seventh Schedule of the Constitution.
- The **National Library of India** is located in **Kolkata**.
- The **Raja Rammohun Roy Library Foundation (RRRLF)** functions under the **Ministry of Culture**.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
(b) 2 and 3 only



PadhAI



(c) 1 and 3 only

(d) 1, 2 and 3

Answer: (d)

1. DOMESTIC PHARMACEUTICAL MANUFACTURERS



- I. India is one of the world's largest pharmaceutical producers, particularly in **generic medicines** and **vaccines**.
- II. The Government is supporting domestic manufacturers through:
 - A. Production Linked Incentive (PLI) Schemes.
 - B. Promotion of Bulk Drug Parks.
 - C. Medical Devices Parks.
 - D. Ease of doing business reforms.
 - E. Strengthening quality standards and regulatory systems.
- III. These initiatives contribute to **Atmanirbhar Bharat** and improved healthcare security.

BACKGROUND / CONTEXT

Indian Pharmaceutical Industry

India is globally recognized as:

- The **largest supplier of generic medicines** by volume.
- A leading manufacturer of vaccines.
- A major exporter of Active Pharmaceutical Ingredients (APIs), formulations, and biotechnology products.

Major Products

- Generic medicines.
- Vaccines.
- Biosimilars.

- Active Pharmaceutical Ingredients (APIs).
- Medical devices.
- Nutraceuticals.

GOVERNMENT INITIATIVES

Production Linked Incentive (PLI) Scheme for Pharmaceuticals

Objective

- I. Promote domestic manufacturing of:
 - A. High-value pharmaceutical products.
 - B. Complex generic drugs.
 - C. Biopharmaceuticals.
 - D. Novel medicines.

Benefits

- Incentives based on incremental sales.
- Encourages investment.
- Improves global competitiveness.

PLI Scheme for Bulk Drugs

Promotes domestic manufacturing of:

- Critical Active Pharmaceutical Ingredients (APIs).
- Key Starting Materials (KSMs).
- Drug Intermediates.

Objective

- Reduce dependence on imports for essential pharmaceutical raw materials.

Promotion of Bulk Drug Parks

Supports creation of:

- Common infrastructure.
- Testing facilities.
- Utilities.
- Waste management systems.

Benefits include:

- Lower production costs.
- Improved economies of scale.
- Enhanced competitiveness.

Medical Devices Parks

Encourages domestic manufacturing of:



- Diagnostic equipment.
- Medical instruments.
- Implants.
- Consumables.

REGULATORY FRAMEWORK

Central Drugs Standard Control Organization (CDSCO)

Functions under the **Ministry of Health and Family Welfare**.

Responsible for:

- Drug approvals.
- Clinical trials.
- Drug quality regulation.
- Import regulation.
- Medical device regulation.

Drugs and Cosmetics Act, 1940

Provides for:

- Regulation of manufacture.
- Distribution.
- Sale of drugs and cosmetics.
- Quality standards.

ROLE OF THE DEPARTMENT OF PHARMACEUTICALS

The **Department of Pharmaceuticals** functions under the:

- **Ministry of Chemicals and Fertilizers**

Key responsibilities include:

- Pharmaceutical policy.
- Promotion of domestic manufacturing.
- Pricing policies.
- PLI implementation.
- Public sector pharmaceutical enterprises.

SIGNIFICANCE

Healthcare

- Ensures affordable medicines.
- Improves medicine availability.
- Strengthens healthcare security.

Economic

- Promotes manufacturing.
- Generates employment.
- Increases exports.

Strategic

- Reduces dependence on imported APIs.
- Enhances supply chain resilience.

Innovation

- Encourages research and development.
- Supports biotechnology and advanced pharmaceuticals.

CHALLENGES

- Dependence on imported APIs for some medicines.
- Compliance with evolving global quality standards.
- Rising research and development costs.
- Increasing international competition.
- Environmental compliance in pharmaceutical manufacturing.

WAY FORWARD

- Expand domestic API production.
- Increase investment in pharmaceutical R&D.
- Promote innovation through academia-industry collaboration.
- Strengthen quality assurance and regulatory capacity.
- Improve export competitiveness through international harmonisation.

KEY HIGHLIGHTS

- **Nodal Department:** Department of Pharmaceuticals.
- **Parent Ministry:** Ministry of Chemicals and Fertilizers.
- **Major Schemes:** PLI for Pharmaceuticals, PLI for Bulk Drugs, Bulk Drug Parks Scheme, Medical Devices Parks Scheme.



- **Regulator:** Central Drugs Standard Control Organization (CDSCO).
- **Major Law:** Drugs and Cosmetics Act, 1940.
- **Strategic Importance:** Supports self-reliance, healthcare security, and India's position as the "Pharmacy of the World."
- **Challenges:** API import dependence, quality standards, and innovation capacity.

PRELIMS BOOSTER BOX

- **Department of Pharmaceuticals:** Functions under the **Ministry of Chemicals and Fertilizers**.
- **CDSCO: Central Drugs Standard Control Organization**, India's national drug regulatory authority.
- **Drugs and Cosmetics Act, 1940:** Principal legislation regulating drugs and cosmetics in India.
- **API: Active Pharmaceutical Ingredient**, the biologically active component of a medicine.
- **KSM: Key Starting Material**, an important raw material used in manufacturing APIs.
- **PLI Scheme:** Production Linked Incentive Scheme aimed at boosting domestic manufacturing.
- **Bulk Drug Park:** Industrial park with common infrastructure for manufacturing APIs and intermediates.
- **Jan Aushadhi Scheme (PMBJP):** Provides affordable quality generic medicines through dedicated retail outlets.
- **India's Global Position:** Among the world's leading producers of generic medicines and vaccines and a major pharmaceutical exporter.

PadhAI-GENERATED UPSC MCQ

Consider the following statements regarding India's pharmaceutical sector:

- The **Department of Pharmaceuticals** functions under the **Ministry of Chemicals and Fertilizers**.

- The **Central Drugs Standard Control Organization (CDSCO)** is India's national drug regulatory authority.
- The **PLI Scheme for Bulk Drugs** aims to promote domestic manufacturing of critical Active Pharmaceutical Ingredients (APIs).

Which of the statements given above is/are correct?

- 1 and 2 only
- 2 and 3 only
- 1 and 3 only
- 1, 2 and 3

Answer: (d)

2. STRONGER LAW, SAFER EXAMS: INDIA TIGHTENS THE NOOSE ON PAPER LEAKS



- India has introduced a comprehensive legal framework to combat:
 - Question paper leaks.
 - Cheating syndicates.
 - Impersonation.
 - Unauthorized access to examination systems.
 - Tampering with examination processes.
- The reforms seek to:
 - Protect the interests of genuine candidates.

- B. Strengthen public trust.
- C. Improve examination governance.
- D. Ensure accountability of institutions.

BACKGROUND / CONTEXT

Public Examinations (Prevention of Unfair Means) Act, 2024

The Act provides a dedicated legal framework to prevent organised malpractices in public examinations.

Objectives

- Ensure fair and transparent examinations.
- Prevent organised cheating networks.
- Protect the integrity of recruitment and entrance tests.
- Deter criminal activities through stringent penalties.

WHAT ARE PUBLIC EXAMINATIONS?

The Act applies to examinations conducted by notified public authorities, including:

- **Union Public Service Commission (UPSC).**
- **Staff Selection Commission (SSC).**
- **Railway Recruitment Boards (RRBs).**
- **National Testing Agency (NTA).**
- Banking recruitment agencies and other notified bodies.

State-level examinations may be covered through corresponding State laws or notifications.

UNFAIR MEANS COVERED UNDER THE ACT

The Act criminalises activities such as:

- Question paper leaks.
- Unauthorized access to question papers.
- Tampering with examination systems.
- Impersonation.
- Manipulation of answer sheets.
- Use of electronic devices for cheating.
- Organised cheating by criminal syndicates.

PENALTIES

Individuals

- Imprisonment and monetary fines for engaging in organised unfair practices.

Organised Crime / Institutions

- Harsher punishment for organised examination fraud.
- Recovery of costs incurred due to cancellation or re-conduct of examinations.
- Action against service providers or institutions involved in malpractice.

OTHER EXAMINATION REFORMS

Technology-Based Security

- Encrypted digital question paper transmission.
- Secure examination software.
- Multi-layer authentication.
- CCTV surveillance.
- Biometric verification.

Institutional Measures

- Improved coordination among agencies.
- Standard Operating Procedures (SOPs).
- Risk assessment and monitoring.
- Enhanced cyber security for examination platforms.

SIGNIFICANCE

Governance

- Improves transparency and accountability.
- Strengthens credibility of recruitment processes.

Students

- Protects deserving candidates.
- Ensures merit-based selection.

Administration

- Discourages organised cheating networks.
- Enhances institutional integrity.

Economy

- Builds confidence in public recruitment systems.



- Reduces administrative costs associated with cancelled examinations.

CHALLENGES

- Tackling sophisticated cyber-enabled cheating.
- Coordinating among multiple examination agencies.
- Maintaining digital security.
- Ensuring timely investigation and prosecution.

WAY FORWARD

- Expand AI-based examination monitoring.
- Strengthen cyber security infrastructure.
- Improve coordination among law enforcement agencies.
- Regularly audit examination systems.
- Increase public awareness regarding legal consequences of malpractice.

KEY HIGHLIGHTS

- **Major Law:** Public Examinations (Prevention of Unfair Means) Act, 2024.
- **Objective:** Prevent paper leaks and organised examination fraud.
- **Coverage:** Public recruitment and entrance examinations conducted by notified authorities.
- **Major Focus:** Transparency, fairness, technology-enabled security, and strict penalties.
- **Strategic Importance:** Protects meritocracy and strengthens public confidence in examination systems.
- **Challenges:** Cyber threats, organised crime, and technological vulnerabilities.
- **Way Forward:** Advanced digital security, AI-enabled monitoring, stronger enforcement, and institutional reforms.

PRELIMS BOOSTER BOX

- I. **Public Examinations (Prevention of Unfair Means) Act, 2024:** India's first dedicated law to

address organised unfair practices in public examinations.

- II. **Purpose:** Prevent paper leaks, impersonation, organised cheating, and manipulation of examination systems.
- III. **Covered Bodies (Illustrative):**
 - A. Union Public Service Commission (UPSC)
 - B. Staff Selection Commission (SSC)
 - C. National Testing Agency (NTA)
 - D. Railway Recruitment Boards (RRBs)
 - E. Other notified public examination authorities
- IV. **National Testing Agency (NTA):** Conducts several national-level entrance examinations such as NEET (UG), JEE (Main), CUET, and others.
- V. **Biometric Verification:** Used to prevent impersonation and ensure candidate authenticity.
- VI. **Standard Operating Procedures (SOPs):** Uniform guidelines for secure conduct of examinations.
- VII. **Cyber Security:** Increasingly important for protecting digital examination systems and encrypted question paper transmission.

PadhAI-GENERATED UPSC MCQ

Consider the following statements regarding the Public Examinations (Prevention of Unfair Means) Act, 2024:

1. It provides a legal framework to prevent organised unfair practices such as paper leaks and impersonation in public examinations.
2. It aims to strengthen transparency and credibility in recruitment and entrance examinations.
3. The Act provides for stringent penalties against organised examination fraud.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

Answer: (d)

3. EXPANSION OF WATER METRO SYSTEMS



- I. Water Metro systems aim to:
 - A. Provide clean and efficient public transport.
 - B. Reduce urban traffic congestion.
 - C. Promote electric mobility.
 - D. Improve connectivity between islands, riverbanks, and urban centres.
- II. The initiative aligns with:
 - A. **National Waterways development.**
 - B. Green transportation.
 - C. Urban mobility reforms.
 - D. Climate-friendly infrastructure.

BACKGROUND / CONTEXT

What is a Water Metro?

- A **Water Metro** is an integrated **urban water-based public transport system** using modern ferries connected with road, metro, and bus networks.

Key Features

- Electric or low-emission ferries.
- Modern passenger terminals.

- Integrated ticketing.
- Scheduled operations.
- Safe and accessible transport.

KOCHI WATER METRO

The **Kochi Water Metro** is India's first integrated Water Metro system.

Location

- Kochi, Kerala.

Implementing Agencies

- Kochi Metro Rail Limited (KMRL).**
- Government of Kerala.

Features

- Electric ferries.
- Multiple terminals across islands and mainland.
- Environment-friendly operations.
- Integration with Kochi Metro Rail.

OBJECTIVES OF WATER METRO EXPANSION

- Promote sustainable urban transport.
- Reduce dependence on road transport.
- Improve last-mile connectivity.
- Encourage electric mobility.
- Utilize inland waterways efficiently.

GOVERNMENT INITIATIVES SUPPORTING WATER TRANSPORT

National Waterways Act, 2016

- Declared **111 National Waterways** across India.
- Promotes inland water transport.

Jal Marg Vikas Project (JMVP)

- Develops inland waterways infrastructure on **National Waterway-1 (Ganga).**
- Enhances cargo and passenger movement.

Sagarmala Programme

- Promotes port-led development.
- Supports coastal and inland water transport.
- Improves multimodal logistics.

ROLE OF THE INLAND WATERWAYS AUTHORITY OF INDIA (IWAI)

Established

- 1986

Nodal Ministry

- Ministry of Ports, Shipping and Waterways.

Functions

- Development of inland waterways.
- Navigation infrastructure.
- Passenger and cargo transport.
- Waterway maintenance.

BENEFITS OF WATER METRO SYSTEMS

Environmental

- Lower carbon emissions.
- Reduced air pollution.
- Energy-efficient transport.

Economic

- Lower operating costs.
- Boosts tourism.
- Encourages local economic development.

Urban Mobility

- Reduces road congestion.
- Faster connectivity.
- Supports multimodal transport.

Social

- Better connectivity for island and waterfront communities.
- Improved accessibility.

CHALLENGES

- High initial infrastructure costs.
- Seasonal water-level variations.
- Navigation safety.
- Integration with existing transport systems.
- Maintenance of waterways.

WAY FORWARD

- Expand Water Metro projects in suitable cities.
- Increase deployment of electric ferries.
- Improve multimodal integration.

- Strengthen waterway maintenance.
- Promote public-private partnerships.
- Enhance passenger safety and digital ticketing systems.

KEY HIGHLIGHTS

- **Model Project:** Kochi Water Metro.
- **Type:** Integrated urban water transport system.
- **Major Technology:** Electric ferries.
- **Supporting Institutions:** Inland Waterways Authority of India (IWAI), Kochi Metro Rail Limited (KMRL).
- **Nodal Ministry:** Ministry of Ports, Shipping and Waterways.
- **Supporting Laws:** National Waterways Act, 2016.
- **Strategic Importance:** Sustainable urban mobility, reduced emissions, and efficient utilization of inland waterways.
- **Challenges:** Infrastructure investment, navigation, and seasonal variability.
- **Way Forward:** Expand to more cities, improve multimodal connectivity, and strengthen green transport initiatives.

PRELIMS BOOSTER BOX

- Water Metro:** Integrated urban water transport system using modern ferries and terminals.
- Kochi Water Metro:** India's first Water Metro system.
- Kochi Metro Rail Limited (KMRL):** Implements the Kochi Water Metro project.
- Electric Ferries:** Reduce emissions and operating costs compared to conventional diesel ferries.
- National Waterways Act, 2016:** Declared 111 National Waterways in India.
- Inland Waterways Authority of India (IWAI):**
 - Established: 1986
 - Nodal Ministry: Ministry of Ports, Shipping and Waterways
- National Waterway-1 (NW-1):**
 - River: Ganga-Bhagirathi-Hooghly

- B. Stretch: **Allahabad (Prayagraj) to Haldia**

- VIII. **Jal Marg Vikas Project (JMVP)**: Develops navigation infrastructure on NW-1.
- IX. **Sagarmala Programme**: Focuses on port-led development, coastal shipping, and improved logistics.

PadhAI-GENERATED UPSC MCQ

Consider the following statements regarding **Water Metro systems in India**:

1. The **Kochi Water Metro** is India's first integrated urban water transport system.
2. The **Inland Waterways Authority of India (IWAI)** functions under the **Ministry of Ports, Shipping and Waterways**.
3. The **National Waterways Act, 2016** declared **111 National Waterways**.

Which of the statements given above is/are correct?

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

Answer: (d)

4. THE PRESIDENT INTERACTS WITH A GROUP OF GRASSROOTS INNOVATORS



- I. The President appreciated innovators who have developed practical and low-cost solutions to local challenges.
- II. The interaction emphasized:
 - A. Promotion of grassroots innovation.
 - B. Recognition of traditional knowledge.
 - C. Encouraging innovation from rural India.
 - D. Supporting sustainable and inclusive development.
- III. Such initiatives help bridge the gap between local ingenuity and national development.

BACKGROUND / CONTEXT

What is Grassroots Innovation?

Grassroots innovation refers to **creative solutions developed by ordinary individuals or local communities** to solve problems using:

- Indigenous knowledge.
- Local resources.
- Affordable technologies.
- Traditional practices.

These innovations are generally:

- Low-cost.
- Sustainable.
- Need-based.
- Easily adaptable by communities.

MAJOR INSTITUTIONS PROMOTING GRASSROOTS INNOVATION

National Innovation Foundation – India (NIF)

Established

- 2000

Department

- Autonomous body under the **Department of Science and Technology (DST)**.

Objectives

- Identify grassroots innovations.
- Support innovators.
- Protect Intellectual Property Rights (IPRs).

- Facilitate value addition and commercialisation.
- Promote sustainable technologies.

Honey Bee Network

A voluntary movement that:

- Documents grassroots innovations.
- Recognises traditional knowledge holders.
- Encourages knowledge sharing while ensuring benefit-sharing.

SUPPORT PROVIDED TO INNOVATORS

The Government supports innovators through:

- Financial assistance.
- Technology development.
- Prototype support.
- Patent facilitation.
- Business incubation.
- Market linkage.
- Capacity building.

ROLE OF THE DEPARTMENT OF SCIENCE AND TECHNOLOGY (DST)

DST promotes:

- Scientific research.
- Innovation ecosystems.
- Technology development.
- Grassroots innovations.
- Startup support.

SIGNIFICANCE OF GRASSROOTS INNOVATION

Social

- Addresses local community problems.
- Improves quality of life.
- Promotes inclusive development.

Economic

- Encourages rural entrepreneurship.
- Generates livelihood opportunities.
- Supports local manufacturing.

Environmental

- Promotes resource-efficient technologies.
- Encourages sustainable solutions.

Scientific

- Integrates traditional knowledge with modern science.
- Expands India's innovation ecosystem.

RELATED INITIATIVES

Startup India

Supports:

- Innovation.
- Entrepreneurship.
- Startup ecosystem.

Atal Innovation Mission (AIM)

Implemented by **NITI Aayog**.

Promotes:

- Innovation culture.
- Atal Tinkering Labs.
- Incubation centres.
- Entrepreneurship.

National Education Policy (NEP) 2020

Encourages:

- Research.
- Creativity.
- Innovation.
- Problem-solving skills.

CHALLENGES

- Limited awareness among rural innovators.
- Difficulty in accessing finance.
- Weak market linkages.
- Intellectual Property Rights protection.
- Commercialisation challenges.

WAY FORWARD

- Strengthen innovation incubation centres.
- Improve patent support.
- Promote university-rural innovation partnerships.
- Expand digital platforms for innovators.



- Enhance financial assistance and market access.
- Encourage innovation-based entrepreneurship in rural India.

KEY HIGHLIGHTS

- **Occasion:** President interacted with grassroots innovators.
- **Venue:** Rashtrapati Bhavan.
- **Major Focus:** Innovation, traditional knowledge, rural entrepreneurship, and sustainable development.
- **Key Institution:** National Innovation Foundation – India (NIF).
- **Nodal Department:** Department of Science and Technology (DST).
- **Supporting Initiatives:** Startup India, Atal Innovation Mission, Honey Bee Network.
- **Strategic Importance:** Promotes inclusive innovation and strengthens India's innovation ecosystem.
- **Challenges:** Commercialisation, IPR protection, financing, and scaling up.
- **Way Forward:** Better institutional support, funding, incubation, and market connectivity.

PRELIMS BOOSTER BOX

- Grassroots Innovation:** Low-cost, community-based innovation developed using local knowledge and resources.
- National Innovation Foundation – India (NIF):**
 - Established: **2000**
 - Autonomous body under the **Department of Science and Technology (DST)**.
- Department of Science and Technology (DST):** Functions under the **Ministry of Science and Technology**.
- Honey Bee Network:** Documents and promotes grassroots innovations while advocating fair recognition and benefit-sharing for innovators.

- Atal Innovation Mission (AIM):** Flagship innovation initiative of **NITI Aayog**.
- Startup India:** Launched in **2016** to promote entrepreneurship and innovation.
- Intellectual Property Rights (IPRs):** Legal rights protecting inventions, designs, trademarks, copyrights, and geographical indications.
- Patent:** Grants exclusive rights to an inventor for a new, useful, and non-obvious invention for a specified period.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

- The **National Innovation Foundation – India (NIF)** is an autonomous institution under the **Department of Science and Technology (DST)**.
- The **Atal Innovation Mission (AIM)** is implemented by **NITI Aayog**.
- Grassroots innovations generally focus on low-cost, locally relevant solutions using indigenous knowledge.

Which of the statements given above is/are correct?

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

Answer: (d)

5. CHIEF OF THE ARMY STAFF LAUNCHES INDIGENOUS XTREME WEATHER GRADE DIESEL



- I. The newly developed diesel is specially formulated for **sub-zero temperatures** encountered in areas such as **Ladakh, Siachen Glacier, and other Himalayan regions**.
- II. It offers:
 - A. Improved engine performance in extreme cold.
 - B. Better fuel flow at very low temperatures.
 - C. Enhanced operational readiness of the Armed Forces.
- III. The initiative reflects India's growing capability in **indigenous defence technologies** and **specialized fuel development**.

BACKGROUND / CONTEXT

What is Xtreme Weather Grade Diesel?

It is a specially engineered diesel fuel capable of operating efficiently under **extreme cold climatic conditions**.

Unlike conventional diesel, it:

- Remains fluid at very low temperatures.
- Prevents fuel waxing and gelling.
- Ensures reliable engine starting.

- Supports uninterrupted military operations.

WHY IS SPECIAL DIESEL REQUIRED?

In high-altitude regions:

- I. Temperatures can fall below **-30°C** or even lower.
- II. Conventional diesel may:
 - A. Become viscous.
 - B. Form wax crystals.
 - C. Block fuel filters.
 - D. Prevent engine ignition.

Extreme Weather Grade Diesel overcomes these challenges.

KEY FEATURES

Low-Temperature Performance

- Operates efficiently in severe cold.
- Maintains fuel flow in sub-zero temperatures.

Enhanced Operational Reliability

Supports:

- Military vehicles.
- Generators.
- Engineering equipment.
- Logistics vehicles.

Indigenous Development

- Developed using Indian scientific and industrial capabilities.
- Reduces dependence on imported specialized fuels.

Supports National Security

Ensures uninterrupted logistics and mobility in strategically important border regions.

SIGNIFICANCE

Defence

- Improves operational preparedness.
- Enhances mobility in forward areas.
- Supports round-the-clock military operations.

Strategic

- Strengthens self-reliance in defence logistics.

- Reduces import dependence.

Technological

- Demonstrates India's capability in advanced fuel technology.
- Encourages defence innovation.

Economic

- Promotes indigenous manufacturing.
- Supports the domestic defence-industrial ecosystem.

RELATED INITIATIVES

Atmanirbhar Bharat

Promotes:

- Indigenous defence production.
- Domestic research and development.
- Strategic self-reliance.

Make in India

Encourages:

- Domestic manufacturing.
- Technology development.
- Innovation.

Innovations for Defence Excellence (iDEX)

Supports:

- Startups.
- MSMEs.
- Defence technology innovation.

CHALLENGES

- Large-scale production.
- Maintaining consistent fuel quality.
- Logistics in remote high-altitude regions.
- Continuous testing under extreme climatic conditions.

WAY FORWARD

- Expand indigenous development of specialised defence fuels.
- Strengthen collaboration among defence laboratories, oil companies, and industry.

- Enhance testing infrastructure for extreme climatic conditions.
- Integrate advanced fuel technologies into future military logistics.

KEY HIGHLIGHTS

- **Innovation:** Indigenous Xtreme Weather Grade Diesel.
- **Launched by:** Chief of the Army Staff (COAS).
- **Purpose:** Reliable operation of vehicles and equipment in extreme cold conditions.
- **Major Beneficiaries:** Indian Army and other defence forces operating in high-altitude regions.
- **Strategic Importance:** Improves operational readiness and strengthens defence self-reliance.
- **Supporting Initiatives:** Atmanirbhar Bharat, Make in India, iDEX.
- **Challenges:** Production, logistics, quality assurance, and harsh-weather testing.

PRELIMS BOOSTER BOX

- **Atmanirbhar Bharat:** National initiative to promote self-reliance across strategic sectors, including defence.
- **Make in India:** Launched in **2014** to boost domestic manufacturing and innovation.
- **iDEX (Innovations for Defence Excellence):** Flagship initiative of the **Ministry of Defence** to foster innovation by startups and MSMEs.
- **High-Altitude Operations:** Regions such as **Ladakh** and **Siachen Glacier** experience extremely low temperatures, requiring specialised equipment and fuels.
- **Diesel Waxing:** At very low temperatures, paraffin wax in diesel can crystallise, clogging fuel filters and affecting engine performance.
- **Specialised Defence Fuels:** Designed to ensure reliable functioning of military platforms under extreme climatic conditions.

PadhAI-GENERATED UPSC MCQ



Consider the following statements regarding the Indigenous Xtreme Weather Grade Diesel:

1. It is designed to enable reliable operation of military vehicles in extremely low-temperature conditions.
2. One of its objectives is to reduce India's dependence on imported specialised defence fuels.
3. The initiative supports the broader vision of **Atmanirbhar Bharat** in the defence sector.

Which of the statements given above is/are correct?

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

Answer: (d)