

# Solutions

DATE : (7<sup>th</sup> Dec- 14<sup>th</sup> Dec )

1) Answer (b) Both Statement-I and Statement-II are correct, but Statement-II does not explain Statement-I.

## Explanation

### Fire Safety Institutional Framework in India

#### Constitutional and Administrative Basis

- Fire Services are treated as a **State subject**, implemented primarily through **States and Urban Local Bodies**.
- **Statement-I (Correct):**
  - Fire services are included under the **12th Schedule** of the Constitution (introduced by the **74th Constitutional Amendment Act, 1992**).
  - Under **Article 243W**, **municipalities** are entrusted with functions such as **fire services**, making them a **local and state responsibility**.
  - This aligns with the principle of **decentralisation and local self-governance**.

#### Role of National Building Code (NBC)

- **Statement-II (Correct):**
  - The **National Building Code (NBC)** is prepared by the **Bureau of Indian Standards (BIS)**.
  - It provides **technical guidelines and standards** for:
    - Fire prevention
    - Fire protection systems
    - Building design and evacuation norms
  - However, the **NBC does not determine constitutional allocation of subjects**.
  - Adoption and enforcement depend on **State governments and local bodies**.

#### Relationship Between the Two Statements

- **Statement-II does NOT explain Statement-I:**
  - The **constitutional status** of fire services arises from **constitutional provisions**, not from the NBC.
  - NBC is **regulatory/technical**, whereas Statement-I concerns **constitutional devolution of powers**.

#### Contemporary Relevance

- Recurrent urban fire incidents (e.g., **coaching centre fires, hospital fires**) highlight:
  - Weak municipal enforcement
  - Poor compliance with NBC norms
- Emphasises the need for **capacity building of ULBs** and **strict enforcement of safety codes**.

2) Answer (b) It helps countries use nuclear technology safely and peacefully, promotes strict nuclear safety standards, and verifies that nuclear materials are not used for weapons.

## Explanation

### International Atomic Energy Agency (IAEA)

#### Institutional Background

- Established in **1957** as an **autonomous organization under the UN system**.
- Mandate often described as **"Atoms for Peace and Development"**.

#### Core Mandate

- **Option (b) - Correct:**
  - Promotes **peaceful use of nuclear technology** (energy, health, agriculture).
  - Develops and enforces **global nuclear safety standards**.
  - Implements **safeguards and inspections** to ensure nuclear material is **not diverted for weapons**.

#### Evaluation of Other Options

- **Option (a) - Incorrect:**
  - IAEA **does not regulate military nuclear facilities**.
- **Option (c) - Incorrect:**
  - Safeguards apply mainly to **NPT signatories**; non-NPT states (India, Pakistan, Israel) are not under full-scope safeguards.

- **✗Option (d) - Incorrect:**
  - IAEA does **not enforce nuclear disarmament** (that falls under treaties like NPT, CTBT).

### Contemporary Significance

- Role highlighted after **Chernobyl** and **Fukushima** disasters.
- Awarded **Nobel Peace Prize (2005)**.
- Supports global trust, nuclear safety, and **sustainable development goals**.

### 3) Answer (a) Ministry of Home Affairs

#### Explanation

#### National Intelligence Grid (NATGRID)

#### Policy Background

- Conceived after the **26/11 Mumbai terror attacks** to address intelligence silos.
- Aims to enhance **counter-terrorism and internal security capabilities**.

#### Administrative Control

- **Option (a) - Correct:**
  - NATGRID is an **attached office of the Ministry of Home Affairs (MHA)**.
  - Accessible to **11 central agencies and State police (SP rank and above)**.

#### Why Other Options Are Incorrect

- **✗Option (b):** Ministry of External Affairs has **no role**.
- **✗Option (c):** Ministry of Defence does **not oversee NATGRID**.
- **✗Option (d):** Though IT-enabled, it is **not under MeitY**.

#### Contemporary Importance

- Enables **real-time data access** from airlines, banks, telecom, Aadhaar, etc.
- Strengthens **predictive policing and intelligence-led investigations**.

### 4) Answer (c) Provides all-weather connectivity to Daulat Beg Oldie military outpost in Ladakh.

#### Explanation

#### Shyok Tunnel - Strategic Infrastructure

#### Project Overview

- Constructed by the **Border Roads Organisation (BRO)**.
- Located on the **Durbuk-Shyok-Daulat Beg Oldie (DS-DBO) Road** in eastern Ladakh.

#### Correct Assessment

- **Option (c) - Correct:**
  - A **920-metre cut-and-cover tunnel**.
  - Ensures **all-weather connectivity to Daulat Beg Oldie (DBO)**, one of India's highest military airstrips near the **LAC with China**.

#### Incorrect Options

- **✗Option (a):** Zoji La Tunnel connects **Srinagar-Leh**, not Shyok.
- **✗Option (b):** Not located in **Sikkim / Nathu La**.
- **✗Option (d):** Unrelated to **India-Myanmar-Thailand Highway**.

#### Strategic Significance

- Enhances **logistics, troop mobility, and border preparedness**.
- Critical in the context of **India-China border tensions**.

### 5) Answer (b) Crypto assets designed to maintain a stable value relative to a specific peg such as a fiat currency.

#### Explanation

#### Stablecoins - Concept and Features

#### Definition and Purpose

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- Stablecoins are **digital crypto assets** pegged to:
  - Fiat currency (USD, Euro)
  - Commodities
  - Basket of assets
- Aim to reduce **volatility** seen in cryptocurrencies like Bitcoin.

### Correct Option

- **Option (b) – Correct:**
  - Designed to maintain **price stability** through reserves or algorithms.
  - Widely used in **payments, remittances, and crypto trading**.

### Why Others Are Incorrect

- **✗Option (a):** Not meant exclusively for DAO voting.
- **✗Option (c):** Value is **not purely speculative**; it is asset-backed.
- **✗Option (d):** **CBDCs** are issued by central banks and are distinct from stablecoins.

### Contemporary Relevance

- Growing regulatory concern due to:
  - Monetary sovereignty risks
  - Financial stability issues
- IMF and BIS advocate **global regulatory frameworks**.

6) **Answer (b)** Endorsing a comprehensive plan to end the Gaza conflict.

### Explanation

#### UN Security Council Resolution 2803

#### Context and Objective

- UNSC Resolution 2803 represents a **multilateral diplomatic initiative** to address the **Gaza conflict**, reflecting the UN's mandate under **Chapter VI & VII** related to peace and security.
- Focuses on **conflict resolution, humanitarian relief, and post-conflict governance**.

#### Evaluation of Options

- **✗Option (a) – Incorrect**
  - The resolution has **no linkage with Sudan** or the Red Sea crisis.
- **Option (b) – Correct**
  - Endorses a **comprehensive plan** including:
    - Establishment of a **Board of Peace** as a **transitional governing mechanism**
    - **Resumption of humanitarian aid** with monitoring safeguards
    - Deployment of an **International Stabilization Force** for security and demilitarization
- **✗Option (c) – Incorrect**
  - Does **not involve sanctions on North Korea**.
- **✗Option (d) – Incorrect**
  - Unrelated to **Syria or Syrian civil war interventions**.

#### Contemporary Significance

- Highlights **UN-led multilateralism** amid criticism of Security Council paralysis.
- Addresses **humanitarian crisis, governance vacuum, and long-term stability** in Gaza.

7) **Answer (a)** I and IV only.

### Explanation

#### National Intelligence Grid (NATGRID)

#### Purpose and Design

- Conceived post **26/11 Mumbai attacks** to eliminate intelligence silos.
- Integrates **government and private databases** for counter-terrorism and serious crime investigation.

#### Statement-wise Evaluation

- **Statement (I) – Correct**
  - NATGRID enables access to **airline, banking, telecom, immigration and other databases**.
- **✗Statement (II) – Incorrect**
  - Access is **not limited to central agencies**; **State police officers of SP rank and above** are also authorised.

- **✗ Statement (III) – Incorrect**
  - NATGRID functions as an **attached office of the Ministry of Home Affairs**, not Defence.
- **Statement (IV) – Correct**
  - Provides **real-time, secure, and role-based access** to multiple datasets.

### Governance Concerns

- Raises issues of **data privacy, oversight, and accountability**, making it relevant for internal security debates.

8) Answer (c) I, II and IV only.

### Explanation

#### Multilateralism in Global Governance

#### Conceptual Understanding

- Multilateralism involves **cooperation among three or more states** to address shared challenges.
- Institutionalised after **World War II** through bodies like **UN, IMF, World Bank, WTO**.

#### Statement-wise Analysis

- **Statement (I) – Correct**
  - Addresses **global public goods** such as **climate change, pandemics, peace and security**.
- **Statement (II) – Correct**
  - Helped prevent **another world war** through collective security and dialogue mechanisms.
- **✗ Statement (III) – Incorrect**
  - Describes **bilateralism**, not multilateralism.
- **Statement (IV) – Correct**
  - Factually consistent with post-war international institutional development.

#### Current Relevance

- Multilateralism faces strain due to **geopolitical rivalries**, yet remains essential for **global crisis management**.

9) Answer (d) I and II only.

### Explanation

#### Physical Geography of Benin

#### Geographical Overview

- Benin is a **West African country** with diverse physical features influencing agriculture, settlement, and regional relations.

#### Statement-wise Evaluation

- **Statement (I) – Correct**
  - **Mount Sokbaro** is the **highest point** in Benin.
- **Statement (II) – Correct**
  - **Atakora Mountains** lie in the **northwest** and are an extension of the **Togo Mountains**.
- **✗ Statement (III) – Incorrect**
  - Benin shares land borders with **Togo, Burkina Faso, Niger, and Nigeria** — not Ghana or Cameroon.

#### Strategic Relevance

- Physical geography shapes **infrastructure planning, agriculture, and cross-border cooperation** in West Africa.

10) Answer (d) I and III only.

### Explanation

#### Anti-Defection Law and Whip System

#### Constitutional Framework

- **10th Schedule** added by the **52nd Constitutional Amendment Act, 1985**.
- Aimed at ensuring **political stability and party discipline**.

#### Statement-wise Analysis

- **Statement (I) – Correct**
  - **Defying the party whip** is a valid ground for **disqualification** under the 10th Schedule.

- **✗ Statement (II) – Incorrect**
  - The 10th Schedule was **not introduced by the 42nd Amendment**, but by the **52nd Amendment Act**.
- **Statement (III) – Correct**
  - The **whip** is a **party-issued directive** guiding MPs/MLAs on voting behaviour.

### Contemporary Debate

- While ensuring stability, critics argue it **weakens legislative independence** and deliberative democracy.

**11) Answer (a)** Both Statement-I and Statement-II are correct and Statement-II explains Statement-I.

### Explanation

#### Utility-Scale Solar Power Projects in India

#### Context and Policy Framework

- Utility-scale solar projects are central to India's **renewable energy transition** and **climate commitments**.
- India targets **292 GW of solar capacity by 2030**, supported by schemes such as **solar parks, PM-KUSUM, and grid-scale PV plants**.

#### Statement-wise Analysis

- **Statement-I (Correct)**
  - **Land acquisition delays** have been consistently identified by **expert committees and policy reviews** as a **major bottleneck**.
  - Delays arise due to:
    - Fragmented approvals
    - Multiple stakeholders
    - State-level procedural variations
  - These delays lead to **cost escalation and project overruns**.
- **Statement-II (Correct)**
  - Committees and policy recommendations have called for a **single-window clearance system**.
  - Purpose:
    - Integrate land, environmental, and local approvals
    - Improve coordination between **Centre, States, and local authorities**
    - Accelerate execution timelines

#### Causal Link

- **Statement-II explains Statement-I**
  - The recommendation of a single-window mechanism directly addresses **land acquisition delays**, the core challenge highlighted in Statement-I.

#### Broader Significance

- Faster solar deployment:
  - Reduces **fossil fuel dependence**
  - Enhances **energy security**
  - Supports **sustainable development and climate goals**

**12) Answer (d)** Statement-I is incorrect, but Statement-II is correct.

### Explanation

#### Women's Representation in State Bar Councils

#### Institutional Context

- Bar Councils are governed under the **Advocates Act, 1961**.
- Historically, women have been **structurally underrepresented** in legal bodies.

#### Statement-wise Analysis

- **✗ Statement-I (Incorrect)**
  - The statement contradicts factual data.
  - Women constitute only **9 out of 441 members** in State Bar Councils.
  - This reflects **acute underrepresentation**, not adequate or balanced representation.
- **Statement-II (Correct)**
  - The **Supreme Court (2024)** mandated:
    - **30% reservation for women** in State Bar Councils where elections are pending.
    - **20% through elections and 10% via co-option** (one-time measure).

#### Contemporary Importance

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- Addresses **gender justice and institutional inclusivity**.
- Aligns with constitutional values of **equality and substantive representation**.

13) **Answer (b)** Tonlé Sap Lake.

### Explanation

#### Largest Freshwater Lake in Southeast Asia

#### Geographical Significance

- **Tonlé Sap Lake**, located in **Cambodia**, is the **largest freshwater lake in Southeast Asia**.

#### Option-wise Evaluation

- **✗Option (a)**
  - Inle Lake is in **Myanmar** and is much smaller.
- **Option (b)**
  - Tonlé Sap is the **largest by area and seasonal volume**.
  - Notable for its **seasonal expansion and contraction** linked to Mekong River flow.
- **✗Option (c)**
  - Toba Lake is in **Indonesia** and is a **volcanic lake**, not the regional freshwater largest.
- **✗Option (d)**
  - Poyang Lake is in **China**, outside Southeast Asia.

#### Environmental Importance

- Recognised under the **Ramsar Convention**.
- Critical for **fisheries, agriculture, and food security**.
- Faces threats from **climate change, dams, and overfishing**.

14) **Answer (b)** Fertiliser Control Order, 1985.

### Explanation

#### Regulation of Biostimulants in India

#### Conceptual Background

- **Biostimulants** enhance:
  - Nutrient uptake
  - Stress tolerance
  - Crop productivity and soil health

#### Option-wise Analysis

- **✗Option (a)**
  - The Seeds Act, 1966 regulates **seed quality**, not biostimulants.
- **Option (b)**
  - Biostimulants are regulated under the **Fertiliser Control Order (FCO), 1985**.
  - FCO provides:
    - Product standards
    - Registration norms
    - Quality control mechanisms
- **✗Option (c)**
  - Essential Commodities Act is **general**, not product-specific.
- **✗Option (d)**
  - Insecticides Act covers **pesticides**, not biostimulants.

#### Policy Relevance

- Regulation under FCO supports:
  - **Sustainable agriculture**
  - **Climate-resilient farming**
  - **Circular bio-economy**

15) **Answer (d)** Passenger vehicles with gross vehicle weight less than 3500 kg.

### Explanation

#### Corporate Average Fuel Economy (CAFE) Norms

### Policy Framework

- Notified in **2017** under the **Energy Conservation Act, 2001**.
- Implemented in **phases** to progressively tighten efficiency standards.

### Option-wise Evaluation

- **✗Option (a)** Two-wheelers and three-wheelers are **excluded**.
- **✗Option (b)** Heavy-duty trucks fall **outside the CAFE framework**.
- **✗Option (c)** Not limited to diesel vehicles or those above 3500 kg.
- **Option (d)** Applies to **passenger vehicles with GVW < 3500 kg**, including:
  - Petrol
  - Diesel
  - CNG/LPG
  - Hybrid and electric vehicles

### Contemporary Significance

- Reduces **oil import dependence**
- Mitigates **urban air pollution**
- Supports **India's climate and emission-reduction commitments**

16) **Answer (c)** Only three.

### Explanation

#### Big Cat Species in India

#### Ecological and Conservation Context

- Big cats are **apex predators** and **keystone species**, essential for maintaining **ecosystem balance**.
- India is unique in hosting **five of the world's seven big cat species**, a key reason behind initiatives like the **International Big Cat Alliance (IBCA)**.

### Pair-wise Analysis

- **Pair (1): Tiger – Found in India**
  - Tigers are **native to India** and widely distributed across **reserves and national parks**.
- **Pair (2): Jaguar – Not found in India**
  - Jaguars are native to **Central and South America**, absent from India.
- **Pair (3): Snow Leopard – Found in India**
  - Snow leopards inhabit the **high-altitude Himalayan regions** of northern India.
- **✗Pair (4): Puma – Found in India**
  - Pumas (cougars) are **native to the Americas** and **do not occur in India**.

**Conclusion:** Three pairs are correctly matched, making option **(c)** correct.

17) **Answer (c)** II and III only.

### Explanation

#### Autonomous Bodies under the Ministry of Education

#### Institutional Background

- Autonomous bodies play a vital role in **education, research, accreditation, and examinations**.
- They derive legitimacy either through **Acts of Parliament** or **registration under the Societies Registration Act, 1860**.

### Statement-wise Analysis

- **✗Statement (I) – Incorrect**
  - Autonomous bodies are **not exclusively created by parliamentary Acts**; many are registered as societies.
- **Statement (II) – Correct**
  - Committees have recommended that **NTA ensure transparency and timely conduct of examinations**.
- **Statement (III) – Correct**
  - Reports highlight **vacant positions in UGC** and **staff shortages in ICSSR**, affecting performance.

### Governance Significance

- Addressing staffing and transparency issues is crucial for **credibility, efficiency, and institutional autonomy**.

18) **Answer (b)** I, III and IV only.

### Explanation

#### Indian Statistical Institute (ISI)

#### Institutional Overview

- ISI is India's premier institution for **statistics, mathematics, and quantitative research**.
- It has significantly shaped **India's official statistical system**.

#### Statement-wise Analysis

- **Statement (I) – Correct**
  - Founded by **Prasanta Chandra Mahalanobis**, a pioneer of modern statistics in India.
- **Statement (II) – Incorrect**
  - ISI's headquarters is in **Kolkata**, not Mumbai.
- **Statement (III) – Correct**
  - ISI was registered under the **Societies Registration Act, 1860** in **1932**.
- **Statement (IV) – Correct**
  - Granted **Institute of National Importance** status in **1959**.

**Conclusion:** Statements I, III, and IV are correct.

19) **Answer (c)** II, III and IV only.

### Explanation

#### Tsunamis: Causes and Geophysical Context

#### Disaster Science Background

- Tsunamis are large sea waves caused by **sudden displacement of ocean water**, posing major risks to coastal regions.

#### Statement-wise Analysis

- **Statement (I) – Incorrect**
  - Tsunamis are **not caused only by volcanic eruptions**; earthquakes and landslides are major triggers.
- **Statement (II) – Correct**
  - **Pacific subduction zones** account for about **90% of global earthquakes and tsunamis**.
- **Statement (III) – Correct**
  - **Underwater landslides** can generate tsunamis.
- **Statement (IV) – Correct**
  - The **"Ring of Fire"** is associated with intense **seismic and volcanic activity** around the Pacific.

**Disaster Management Relevance:** Understanding these causes is essential for **early warning systems and coastal planning**.

20) **Answer (a)** III only.

### Explanation

#### Multiple Myeloma

#### Medical and Oncological Context

- Multiple myeloma is a **malignant disorder of plasma cells**, affecting the **bone marrow** and immune function.

#### Statement-wise Analysis

- **Statement (I) – Incorrect**
  - It does **not affect red blood cells in the liver**; it involves **plasma cells in bone marrow**.
- **Statement (II) – Incorrect**
  - **Antibody therapy alone is not curative**; comprehensive treatment targeting cancer cells is required.
- **Statement (III) – Correct**
  - Symptoms include **frequent urination, confusion, and bone pain**, often due to **hypercalcemia**.

**Clinical Significance:** Advances in **immunotherapy and targeted treatment** have improved survival, but **early detection and combined therapy** remain crucial.

21) **Answer (a)** Both Statement-I and Statement-II are correct and Statement-II explains Statement-I.

### Explanation

#### 6G Wireless Technology

### Conceptual Background

- **6G** is the **sixth-generation wireless technology**, succeeding 5G.
- It is expected to underpin **future digital infrastructure**, enabling **AI-native networks**, immersive technologies, and ultra-reliable communications.

### Statement-wise Analysis

- **Statement-I (Correct)**
  - 6G is envisioned to deliver **up to 1,000× higher data speeds** than 5G.
  - Represents a **paradigm shift** in wireless communication, enabling **real-time, data-intensive applications**.
- **Statement-II (Correct)**
  - 6G will use **much higher frequency bands**, including the **terahertz (THz) spectrum**.
  - Higher frequencies provide:
    - **Wider bandwidth**
    - **Ultra-low latency (microseconds)**
    - **Massive data throughput**

### Causal Link

- **Statement-II explains Statement-I**
  - The use of **higher-frequency spectrum** is the **key technological reason** for the massive increase in data speed envisioned under 6G.

### Policy Relevance (India)

- **Bharat 6G Alliance** aims for **global leadership in affordable 5G/6G solutions by 2030**.
- Critical for **digital sovereignty, smart cities, autonomous systems**, and economic growth.

22) Answer (d) I and IV only.

### Explanation

#### UNEP Report: "GEO – A Future We Choose"

#### Report Context

- A **flagship UNEP Global Environment Outlook (GEO)** report.
- Focuses on **climate change, land degradation, pollution**, and pathways for **sustainable development**.

### Statement-wise Analysis

- **Statement (I) – Correct**
  - The report highlights **annual land degradation** comparable in scale to countries like **Colombia or Ethiopia**.
- **Statement (II) – Incorrect**
  - The report states that **GHG emissions have risen by ~1.5% annually since 1990**, not declined.
- **Statement (III) – Incorrect**
  - It advocates tracking **both human and natural capital**, not human capital alone.
- **Statement (IV) – Correct**
  - Recommends **~\$8 trillion annual investment until 2050** to achieve **net-zero and sustainability goals**.

**Policy Significance:** Calls for **whole-of-government approaches** and **moving beyond GDP** to multidimensional progress metrics aligned with **SDGs**.

23) Answer (a) I and IV only.

### Explanation

#### Pass-Through Tax Status (REITs)

#### Conceptual Understanding

- **Pass-through taxation** means income is **not taxed at the entity level** but only in the hands of investors.
- Prevents **double taxation**, enhancing investment attractiveness.

### Statement-wise Analysis

- **Statement (I) – Correct**
  - REITs were granted **pass-through status in the Union Budget 2014**.
- **Statement (II) – Incorrect**
  - With pass-through status, the **entity is not required to pay corporate tax**.
- **Statement (III) – Incorrect**
  - Pass-through status **eliminates double taxation**, not causes it.
- **Statement (IV) – Correct**
  - Ensures taxation **only at the investor level**, boosting capital flows.

**Economic Relevance:** Supports **real estate investment**, infrastructure financing, and market depth.

24) Answer (d) I and II only.

**Explanation**

**Aditya-L1 Mission**

**Mission Overview**

- **India's first solar observatory mission**, launched by **ISRO in September 2023**.
- Positioned at the **Sun-Earth Lagrange Point L1 (~1.5 million km from Earth)**.

**Statement-wise Analysis**

- **Statement (I) - Correct**
  - **L1 location enables continuous, eclipse-free observation** of the Sun.
- **Statement (II) - Correct**
  - **Visible Emission Line Coronagraph (VELC)** is one of the **seven onboard payloads**.
- **Statement (III) - Incorrect**
  - Aditya-L1 is in a **halo orbit around L1, not a geostationary orbit**.

**Strategic Importance**

- Enhances **space weather forecasting**.
- Protects **satellites, power grids, and communication systems**.
- Strengthens India's role in **global heliophysics research**.

25) Answer (b) II, III and IV only

**Explanation**

**MAVEN Mission (Mars Atmosphere and Volatile Evolution)**

- **Statement (I) - Incorrect**
  - MAVEN is **not a surface mission** and does **not deploy rovers**; it is an **orbiter**.
- **Statement (II) - Correct**
  - A key objective is to study **interaction between Martian atmosphere and solar wind**.
- **Statement (III) - Correct**
  - Focuses on **upper atmosphere and ionosphere** to understand atmospheric loss.
- **Statement (IV) - Correct**
  - Launched by **NASA in 2013**.

**Correct statements: II, III and IV**

26) Answer (b) I and III only

**Explanation**

**Pax Silica Initiative**

- **Statement (I) - Correct**
  - Covers the **entire silicon value chain**: minerals → manufacturing → deployment.
- **Statement (II) - Incorrect**
  - **India is not an original member**.
- **Statement (III) - Correct**
  - It is a **US-led initiative for transformative technologies**.
- **Statement (IV) - Incorrect**
  - Scope is **not limited to mining alone**.

**Correct statements: I and III**

27) Answer (d) II only

**Explanation**

**ICRIER-Prosus Centre Report on Digitalisation**

- **Statement (I) - Incorrect**
  - The report highlights **uneven digitalisation**, not uniform progress.
- **Statement (II) - Correct**
  - Digital gaps may **slow Digital Bharat goals**.
- **Statement (III) - Incorrect**

- Jharkhand is not among the top five states in digital scores.

Only Statement II is correct

28) Answer (c) I, II and III

**Explanation**

**National Makhana Board**

- **Statement (I) – Correct**
  - Functions under **Ministry of Agriculture**, focuses on **value addition and exports**.
- **Statement (II) – Correct**
  - Located in **Bihar**, aims to boost **farmer income through scientific cultivation**.
- **Statement (III) – Correct**
  - First meeting approved a **roadmap for research, branding, and competitiveness**.

All three statements are correct

29) Answer (b) Both Statement-I and Statement-II are correct, but Statement-II does not explain Statement-I

**Explanation**

**Census 2027**

- **Statement-I – Correct**
  - Census 2027 will allow **self-enumeration**, a first in India.
- **Statement-II – Correct**
  - Introduction of **Census Management & Monitoring System (CMMS)** for real-time oversight.
- **Explanation Link**
  - CMMS improves **monitoring**, but does **not explain self-enumeration**.

Both statements are correct, but not causally linked

30) Answer (a) Both Statement-I and Statement-II are correct and Statement-II explains Statement-I

**Explanation**

**United Nations Environment Assembly (UNEA)**

- **Statement-I – Correct**
  - UNEA is the **highest-level decision-making body on environment** within the UN system.
- **Statement-II – Correct**
  - Its mandate includes **providing policy direction, setting global environmental agenda, and responding to environmental challenges**.
- **Causal Link**
  - UNEA is the highest-level body **because** it provides overarching **policy direction and responses**, explaining Statement-I.

31) Answer (d) Statement-I is incorrect, but Statement-II is correct

**Explanation**

**CoalSETU Policy**

- **Statement-I – Incorrect**
  - **Coking coal is explicitly excluded** from CoalSETU auctions.
- **Statement-II – Correct**
  - Domestic buyers can participate **for own consumption or export** (with conditions).

Only Statement-II is correct.

32) Answer (b) Both Statement-I and Statement-II are correct, but Statement-II does not explain Statement-I

**Explanation**

**AMRUT Scheme**

- **Statement-I – Correct**
  - **Inadequate data reporting** is a documented challenge affecting implementation.
- **Statement-II – Correct**
  - AMRUT is a **centrally sponsored scheme** implemented by the **Ministry of Housing and Urban Affairs**.
- **No causal link**
  - Being centrally sponsored **does not explain** data reporting issues.

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33) Answer (a) Only one

### Explanation

#### SHANTI Bill, 2025

- **✗Pair (1) - Incorrect**
  - Consolidates **domestic nuclear laws**, not international treaties.
- **✗Pair (2) - Incorrect**
  - Opens sector to **private companies**, not private foreign banks.
- **Pair (3) - Correct**
  - Expanding nuclear power **reduces dependence on fossil fuels**.

Only one pair is correctly matched.

34) Answer (d) None

### Explanation

#### Southeast Asian Monuments

- **✗Pair (1) - Incorrect**
  - Angkor Wat is in **Cambodia**, not Indonesia.
- **✗Pair (2) - Incorrect**
  - Preah Vihear Temple is in **Cambodia**, not Thailand.
- **✗Pair (3) - Incorrect**
  - Borobudur is in **Indonesia**, not Cambodia.

All pairs are incorrectly matched.

35) Answer (b) II only

### Explanation

#### PoSH Act, 2013

- **✗Statement (I) - Incorrect**
  - The PoSH Act applies to **all women at the workplace**, including **interns, trainees, visitors, and contract workers**, not only formally employed women.
- **Statement (II) - Correct**
  - An **Internal Complaints Committee (ICC)** is **mandatory in every workplace with more than 10 employees**, as per the Act.

Only Statement II is correct.

36) Answer (a) I only

### Explanation

#### International Standards and ISO

- **Statement (I) - Correct**
  - International standards **facilitate global trade, innovation, interoperability, and cost reduction**.
- **✗Statement (II) - Incorrect**
  - **Developing countries are underrepresented** in ISO technical committees; they are **not adequately represented**.

Only Statement I is correct.

37) Answer (d) I, II and III

### Explanation

#### UNESCO Convention against Discrimination in Education (1960)

- **Statement (I) - Correct**
  - **Non-discrimination** is a core obligation of the Convention.
- **Statement (II) - Correct**
  - It mandates **equality of access to higher education**.
- **Statement (III) - Correct**
  - It requires **accessible secondary education**.

All three statements are correct.

38) Answer (a) Both Statement-I and Statement-II are correct and Statement-II explains Statement-I

### Explanation

#### Proton Exchange Membrane (PEM) Fuel Cells

- **Statement-I – Correct**
  - PEM fuel cells generate electricity with **only water and heat as byproducts**, ensuring **zero harmful emissions**.
- **Statement-II – Correct**
  - Hydrogen is split into **protons and electrons**, producing electricity; oxygen combines to form **water**.
- **Explanation Link**
  - The **electrochemical mechanism** directly explains the **clean nature** of PEM fuel cells.

**Both statements are correct and causally linked.**

39) **Answer (c)** Statement-I is correct, but Statement-II is incorrect

### Explanation

#### Narco Analysis and Fundamental Rights

- **Statement-I – Correct**
  - In *Selvi v. State of Karnataka (2010)*, the Supreme Court held that **forced narco tests violate Article 20(3)**(right against self-incrimination).
- **Statement-II – Incorrect**
  - **Article 20** deals with self-incrimination, **not free legal aid**.
  - Free legal aid is under **Article 39A**.

**Only Statement I is correct.**

40) **Answer (d)** Ruling parts of central Tamil Nadu as a feudatory of the Pallavas

### Explanation

#### Emperor Perumbidugu Mutharaiyar II

- **Option (a)** – Not a **Pandya** ruler.
- **Option (b)** – Not a **Chola** ruler; associated mainly with **Shaivism**, not Vaishnavism.
- **Option (c)** – Did **not** establish the **Kakatiya dynasty**.
- **Option (d)** – Ruled **central Tamil Nadu (705–745 AD)** from **Tiruchirappalli** as a **Pallava feudatory**, known for **stable administration and cultural patronage**.

41) **Answer (b)** It is produced mainly from short staple hill variety pest-resistant cotton

### Explanation

#### Ponduru Khadi (GI Tag)

- **Option (a)** – Not an artificial fibre.
- **Option (b)** – Made from **short staple hill variety, pest-resistant cotton**, enabling **chemical-free farming**.
- **Option (c)** – Not silk; not from Karnataka.
- **Option (d)** – Not a woollen textile of Himachal Pradesh.

42) **Answer (c)** Stroke due to cerebral artery blockage

### Explanation

#### Supernova Stent

- **Option (a)** – Not for pulmonary hypertension.
- **Option (b)** – Not for coronary artery disease.
- **Option (c)** – Used in **ischemic stroke** to remove clots from **blocked cerebral arteries** (large vessel occlusion).
- **Option (d)** – Not related to renal failure.

43) **Answer (a)** Microsoft

### Explanation

#### MahaCrimeOS AI

- **Option (a)** – Developed by **Maharashtra Police in collaboration with Microsoft (Azure OpenAI)**.
- **Option (b)** – Google not involved.
- **Option (c)** – Infosys not involved.
- **Option (d)** – IBM not involved.

44) Answer (b) I, II and IV only

**Explanation**

**Geminid Meteor Shower**

- **Statement (I)** – Geminids are **bright, fast, and yellow-coloured**.
- **Statement (II)** – Peaks in **mid-December** every year.
- **Statement (III)** – Most meteors **burn up**; they do **not** reach Earth as meteorites.
- **Statement (IV)** – Meteors form when **meteoroids burn in Earth's atmosphere** due to friction.

45) Answer (b) I, II and III

**Explanation**

**Methane Emissions and Climate Impact**

- **Statement (I)** – Methane has a **short atmospheric lifetime (~12 years)** compared to CO<sub>2</sub>.
- **Statement (II)** – **India is the 3rd largest methane emitter** globally.
- **Statement (III)** – Methane is the **second most important greenhouse gas** after CO<sub>2</sub> in anthropogenic warming.

All three statements are correct.

46) Answer (d) I, II and III

**Explanation**

**Legal Services Authorities in India**

- **Statement (I)** – **Taluk Legal Services Committee** is the **first point of legal aid** at the grassroots.
- **Statement (II)** – **DLSA functions under the supervision of SLSA**.
- **Statement (III)** – **NALSA is headed by the Chief Justice of India**.

All three statements are correct.

47) Answer (c) Statement-I is correct, but Statement-II is incorrect

**Explanation**

**Methane as a Greenhouse Gas**

- **Statement-I** – Methane is a **short-lived climate pollutant** with **~12-year lifespan**.
- **Statement-II** – **CO<sub>2</sub>, not methane, is the largest contributor** to anthropogenic global warming due to its concentration and longevity.

Only Statement-I is correct.

48) Answer (a) Both Statement-I and Statement-II are correct and Statement-II explains Statement-I

**Explanation**

**Lunarcrete (Moon Construction Material)**

- **Statement-I** – **Lunarcrete** is being researched for **Moon habitats** using in-situ resources.
- **Statement-II** – It uses **lunar regolith mixed with binder and limited water**, explaining its feasibility and importance.

Both statements are correct and causally linked.

49) Answer (d) None

**Explanation**

**Ramsar Wetlands – State Mapping**

- **Pair (1)** – **Pulicat Lake** is in **Andhra Pradesh–Tamil Nadu**, not Kerala.
- **Pair (2)** – **Kopra Jalashay** is in **Chhattisgarh**, not Rajasthan.
- **Pair (3)** – **Siliserh Lake** is in **Rajasthan**, not Chhattisgarh.

All pairs are incorrectly matched.

50) Answer (a) Only one

**Explanation**

### SHANTI Bill, 2025 - Key Provisions

- **✗ Pair (1) - Incorrect**
    - The Bill consolidates domestic nuclear laws, not international energy treaties.
  - **✗ Pair (2) - Incorrect**
    - It allows private companies across the nuclear value chain, not private foreign banks.
  - **Pair (3) - Correct**
    - Expanding nuclear power reduces dependence on fossil fuels, strengthening energy security and supporting energy transition goals.
- Only one pair is correctly matched.



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