

# Solutions

DATE : (8<sup>th</sup> Sept – 14<sup>th</sup> Sept)

1. Answer: (a) Central Government approval is needed for Schedule I animals; State Governments for others.

Explanation:

1) Core Concept

- Wildlife (Protection) Act, 1972 = principal law for protecting wild animals, birds, plants.
- Section 12 → regulates translocation, requiring official permission.

2) Why Correct (a)

- Schedule I species (tiger, elephant, rhino, etc.) → Central Govt approval needed.
- Other wild animals → State Govt approval.

3) Why Others Wrong

- (b): Supreme Court = judicial body, not approving authority.
- (c): Reverses authority structure.
- (d): National Board for Wildlife = advisory, not sanctioning body.

4) Current Affairs Link

- Tiger translocation to Sahyadri TR (2025) underlines operational use of WPA.

5) Keywords

- WPA 1972; Section 12; Schedule I; Translocation; Central approval

6) Conclusion

Translocation = legal conservation strategy under Central/State approval framework.

2. Answer: (a) Immediate ceasefire in Gaza and establishment of a sovereign Palestinian State.

Explanation:

1) Core Concept

- New York Declaration = UNGA initiative for Middle East peace.

2) Why Correct (a)

- Calls for immediate ceasefire in Gaza.
- Advocates for two-state solution (independent Palestine alongside Israel).

3) Why Others Wrong

- (b): Climate change/maritime = irrelevant.
- (c): Cyprus issue unrelated.
- (d): Korean nuclear disarmament not included.

4) Current Affairs Link

- UNGA debates (2024–25): India reaffirmed support for two-state solution.

5) Keywords

- Ceasefire; Gaza; Two-state solution; UNGA; Palestine

6) Conclusion

Declaration = step toward sustainable peace in West Asia.

3. Answer: (c) United Nations Single Convention on Narcotic Drugs (1961).

Explanation:

1) Core Concept

- Gum opium = raw latex → source of medicinal alkaloids (morphine, codeine).
- Subject to strict global regulation.

2) Why Correct (c)

- 1961 UN Convention gave exclusive authorization to India for gum opium.
- 11 other countries grow poppy but cannot extract gum.

3) Why Others Wrong

- (a): WHO = health, not production regulation.
- (b): ICJ = judiciary, no regulatory role.
- (d): ECOSOC oversees policy, but not exclusive rights.

4) Current Affairs Link

- India's Central Bureau of Narcotics regulates cultivation in MP, Rajasthan, UP.
- Global pharma relies on India for alkaloids.

5) Keywords

- 1961 UN Convention; Gum opium; CBN; NDPS Act; Alkaloids

6) Conclusion

India = world's only legal gum opium producer, ensuring medical supply & control.

4. Answer: (a) I only

Explanation:

1) Core Concept

- SWAGAT-FI = Single Window Access for trusted foreign investors.
- Accredited investors = wealthy individuals/institutions allowed higher-risk investments.

2) Why Correct (a)

- Statement I: ✓ Accredited investors allowed in AI-only AIF schemes (unregistered securities).
- Statement II: ✗ Wrong – SWAGAT-FI limited to FPIs/FVCIs in listed securities, not mutual funds/real estate.

### 3) Why Others Wrong

- (b), (c), (d): include false statement II.

### 4) Current Affairs Link

- Reforms (2024–25) = strengthen India's **capital markets** & attract global investors.

### 5) Keywords

- SEBI; SWAGAT-FI; Accredited investors; AIF; FPIs

### 6) Conclusion

➡ Reform = balance between **market openness** & **regulatory safeguards**.

### 5. Answer: (d) I and II only

#### Explanation:

### 1) Core Concept

- **Manuscripts** = handwritten works on palm leaf, birch bark, paper, etc.
- Vital for **cultural heritage & knowledge transfer**.

### 2) Why Correct (d)

- **Statement I:** ✓ Handwritten works, ≥75 years old.
- **Statement II:** ✓ ~75% in **Sanskrit**, rest in regional languages.
- **Statement III:** ✗ Printed/lithographs ≠ manuscripts.

### 3) Why Others Wrong

- (a), (b), (c) = partial/wrong inclusions.

### 4) Current Affairs Link

- **National Manuscripts Mission** + digitization initiatives under Digital India.

### 5) Keywords

- Handwritten heritage; Sanskrit; Digitization; NMM; Preservation

### 6) Conclusion

➡ Manuscripts = **handwritten cultural archives**, majority in **Sanskrit**, core to **heritage conservation**.

### 6. Answer: (a) III and IV only

#### Explanation:

### 1) Core Concept

- Russia = **largest country**, spanning Europe & Asia.
- Physiography → plains, Siberian plateau, Ural Mountains, Caucasus.

### 2) Correct Statements

- **(III):** ✓ Ural Mountains = major mountain range, dividing Europe & Asia.
- **(IV):** ✓ Gora El'brus (5,642 m) = highest peak in Europe, located in Russia's Caucasus.

### 3) Incorrect Statements

- **(I):** ✗ Kamchatka lies between Bering Sea, Pacific Ocean, Sea of Okhotsk.
- **(II):** ✗ Siberia = ~75% of Russia, not "less than half."

### 4) Keywords

- Ural; El'brus; Siberia; Kamchatka; Eurasian geography

### 5) Conclusion

➡ Russia's geography is marked by **strategic mountains & Siberian vastness**, shaping its **climate, economy & power projection**.

### 7. Answer: (a) I and II only

#### Explanation:

### 1) Core Concept

- India = **only country** legally producing **gum opium** under **UN Conventions**.
- Domestic regulation via **NDPS Act, 1985**.

### 2) Correct Statements

- **(I):** ✓ India uniquely authorized under **1961 UN Convention**.
- **(II):** ✓ Cultivation allowed only in **MP, Rajasthan, UP**.

### 3) Incorrect Statement

- **(III):** ✗ Farmers cannot sell in markets → entire produce must go to **Central Bureau of Narcotics (CBN)**.

### 4) Keywords

- NDPS Act; UN 1961 Convention; Gum opium; CBN; MP-RJ-UP

### 5) Conclusion

➡ India's unique **monopoly in gum opium** ensures global medical supply under strict state control.

### 8. Answer: (d) I, II and III

#### Explanation:

### 1) Core Concept

- **Cicadas (Cicadoidea)** = insects with unique life cycles & loud acoustic features.
- Recently reported in **Silent Valley National Park, Kerala**.

### 2) Correct Statements

- **(I):** ✓ 3-stage life cycle → egg → nymph → adult.
- **(II):** ✓ Only **males produce sound** via tymbals.
- **(III):** ✓ Found mainly in **warm & temperate regions** globally.

### 3) Ecological Role

- Part of **food chains**, serve as **ecological indicators** of environmental changes.

### 4) Keywords

- Cicadas; Tymbals; 3-stage cycle; Silent Valley NP; biodiversity indicators

### 5) Conclusion

➡ Cicadas = **bio-indicators of ecosystem health**, linking entomology to **climate and biodiversity studies**.

### 9. Answer: (a) I, II and III

#### Explanation:

### 1) Core Concept

- Gold nanoparticles (AuNPs) = 1–100 nm particles with unique optical, chemical & biomedical uses.

### 2) Correct Statements

- (I):  Used in **biosensors, imaging, diagnostics, drug delivery**.
- (II):  Size = **1–100 nm**.
- (III):  Aggregation reduces **reliability & stability**.

### 3) Current Significance

- Used in **cancer therapy, biosensors, nanomedicine**.
- Key to **future nanotechnology applications**.

### 4) Keywords

- AuNPs; Nanomedicine; Biosensors; Photothermal; Aggregation

### 5) Conclusion

→ AuNPs = **frontier nanotechnology material** with medical and scientific breakthroughs, but **aggregation control is critical**.

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

**Explanation:**

### 1) Core Concept

- **Tiger translocation** = moving tigers between reserves to balance **ecology & human safety**.
- Legal backing under **WPA 1972**; oversight by **NTCA & MoEFCC**.

### 2) Correct Statements

- (I):  Restores **predator-prey balance** in underpopulated reserves.
- (II):  Reduces **human-tiger conflict** in overpopulated reserves.

### 3) Why (b) is Correct

- Both statements correct, but II is **not an explanation** of I → independent justification.

### 4) Current Relevance

- **2025:** Tigers moved from **Tadoba & Pench** → **Sahyadri TR** to revive local extinction.

### 5) Keywords

- NTCA; Sahyadri TR; Predator-prey; Human-tiger conflict; WPA 1972

### 6) Conclusion

→ Translocation = **practical conservation tool** for long-term tiger survival, though dependent on **habitat suitability & community support**.

**11. Answer:** (c) UMANG

**Explanation:**

### 1) Core Concept

- AI in governance = improves **public service delivery**, accessibility, multilingual inclusivity, and grievance redressal.

### 2) Why Correct (c)

- **UMANG (Unified Mobile Application for New-age Governance):**

- Provides access to **multiple govt. services** on one platform.
- AI-enabled features: **chatbots, grievance handling, citizen queries**.
- Scales up for **large-scale citizen interactions**.

### 3) Why Others Wrong

- (a) **Bhashini:** Multilingual access, not grievance platform.
- (b) **Diella:** Linked to tenders, not citizen service delivery.
- (d) **RAHAT:** AI in **disaster relief**, not routine governance services.

### 4) Current Relevance

- UMANG integrates with **Digital India & AI-powered governance push (2023–25)**.

### 5) Keywords

- UMANG; AI-governance; Grievance redressal; Digital India

### 6) Conclusion

→ UMANG = **flagship AI platform** for citizen-centric governance in India.

**12. Answer:** (a) A recombinant chimeric malaria vaccine targeting multiple stages of *Plasmodium falciparum*

**Explanation:**

### 1) Core Concept

- **AdFalcivax** = India's first **indigenous multi-stage malaria vaccine**.
- Targets **Plasmodium falciparum** – deadliest malaria parasite.

### 2) Why Correct (a)

- Combines **multiple antigens** across parasite stages → broader protection.
- Recombinant DNA technology = stronger, longer-lasting immunity.

### 3) Why Others Wrong

- (b): Dengue = wrong.
- (c): Polio = wrong.
- (d): Tuberculosis = wrong.

### 4) Current Relevance

- Licensed in India (2024–25).
- Supports **domestic vaccine R&D** & India's role in **global malaria control**.

### 5) Keywords

- AdFalcivax; Plasmodium falciparum; Multi-stage vaccine; DNA technology

### 6) Conclusion

→ AdFalcivax = India's **game-changer in malaria control** with dual-stage protection.

**13. Answer:** (b) A small herb with deep reddish leaves and white flowers

**Explanation:**

### 1) Core Concept

- **Murikooti Pacha (Red Ivy):** Indigenous herb of tropical India & SE Asia.
- Known for **wound-healing** properties.

### 2) Why Correct (b)

- **Morphology:** Small herb, **reddish leaves, white flowers.**
- Contains **Acteoside** → proven wound-healing compound.

### 3) Why Others Wrong

- (a): Not a sub-Himalayan shrub.
- (c): Not a tree.
- (d): Not marine algae.

### 4) Current Relevance

- Studies bridge **Ayurveda & pharmacology.**
- Shows potential for **affordable wound care solutions.**

### 5) Keywords

- Murikooti Pacha; Red Ivy; Acteoside; Ethnobotany; Ayurveda

### 6) Conclusion ➡ Murikooti Pacha = example of **traditional knowledge validated by science.**

### 14. Answer: (c) I, II, III and IV

#### Explanation:

### 1) Core Concept

- **Critical minerals:** essential for clean energy & tech (lithium, cobalt, graphite).
- **Strategic minerals:** linked to national security (uranium, thorium).

### 2) Why All Four Correct

- **Lithium (I):** ✓ Critical for EV batteries.
- **Thorium (II):** ✓ Strategic → nuclear energy.
- **Uranium (III):** ✓ Strategic → nuclear fuel.
- **Cobalt (IV):** ✓ Critical → battery technologies.

### 3) Policy Link

- Mining reforms (2023–25) under **MMDR Act** → boost exploration, reduce imports.

### 4) Current Relevance

- India imports **90% of lithium & cobalt** → push for **self-reliance.**

### 5) Keywords

- Critical minerals; Strategic minerals; MMDR Act; Lithium; Uranium

### 6) Conclusion ➡ Securing these minerals = vital for **energy transition + strategic security.**

### 15. Answer: (b) I and II only

#### Explanation:

### 1) Core Concept

- **Green finance** = capital flows directed to projects with **economic + environmental benefits.**
- Includes **green bonds, climate funds, GSSS bonds.**

### 2) Why Correct (I & II)

- (I): ✓ Green finance restructures investments for sustainability.
- (II): ✓ Green Climate Fund → \$100 billion annual mobilization goal.

### 3) Why Incorrect

- (III): ✗ Wrong – GSSS bonds include **green, blue, AND yellow (solar) bonds.**

### 4) Current Relevance

- India needs **\$170 billion annually till 2030** for climate goals.
- GSSS bonds issued in India (2023–24) to fund renewable projects.

### 5) Keywords

- Green finance; GCF; GSSS bonds; Climate targets; Sustainable investments

### 6) Conclusion ➡ Green finance = backbone of India's **climate strategy & sustainable growth model.**

### 16. Answer: (b) II, III and IV only

#### Explanation:

### 1) Core Concept

- **Vinoba Bhave** = Gandhian leader, social reformer, and freedom fighter.
- Known as the **"spiritual heir of Gandhi"** and father of the **Bhoodan Movement** (1951).

### 2) Correct Statements

- (II): ✓ Bhoodan = voluntary, non-violent land redistribution to the landless.
- (III): ✓ First individual satyagrahi (1940) during Individual Civil Disobedience.
- (IV): ✓ Founded **Gram-seva Mandal (1934)** for rural upliftment.

### 3) Incorrect Statement

- (I): ✗ *Nai Talim* (basic education) is linked to **Mahatma Gandhi**, not Vinoba.

### 4) Keywords

- Bhoodan; Gram-seva Mandal; First satyagrahi; Gandhian ideals

### 5) Conclusion ➡ Vinoba Bhave = symbol of **non-violence, rural justice, and Gandhian constructive work.**

### 17. Answer: (d) II, III and IV only

#### Explanation:

### 1) Core Concept

- **CPA (1911):** Oldest Commonwealth body, fosters **parliamentary cooperation & democracy.**
- Links **180+ legislatures** worldwide.

### 2) Correct Statements

- (II): ✓ Established in 1911.
- (III): ✓ Membership = over 180 legislatures/branches.

- (IV):  Aims = inter-parliamentary collaboration & best practices.

### 3) Incorrect Statement

- (I):  HQ Secretariat is in **London**, not New Delhi.

### 4) Keywords

- CPA 1911; 180 legislatures; London HQ; Parliamentary democracy

5) Conclusion  CPA = global platform for **dialogue, governance, and democratic strengthening**.

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

#### Explanation:

#### 1) Core Concept

- FTI-TTP (2024): Indian govt's **trusted traveller programme** for quick immigration.
- Promotes **ease of travel** for citizens & OCI cardholders.

#### 2) Correct Statements

- (I):  Ensures ~30-second clearance for registered travellers.
- (III):  Launched at **Delhi Airport (2024)**.
- (IV):  Extended to 13 other airports.

#### 3) Incorrect Statement

- (II):  OCI cardholders also eligible, not just Indians.

#### 4) Keywords

- FTI-TTP; 30-second clearance; Delhi launch; OCI eligibility

5) Conclusion  FTI-TTP = tech-driven reform for **efficient travel, tourism, and global mobility**.

### 19. Answer: (d) I only

#### Explanation:

#### 1) Core Concept

- DRI = tool created by the **15th Finance Commission** to assess disaster risk across states.
- Links **fund allocation** with hazard/vulnerability exposure.

#### 2) Correct Statement

- (I):  Exposure parameters = **Population & GDP**.

#### 3) Incorrect Statements

- (II):  Developed by **15th**, not 16th, Finance Commission.
- (III):  Includes **hazards, vulnerabilities, and exposures**, not hazards alone.

#### 4) Current Relevance

- Guides **disaster fund allocations**, ensures **scientific, equitable planning**.

#### 5) Keywords

- 15th FC; Hazards; Vulnerabilities; Population & GDP; DRI

6) Conclusion  DRI = **scientific basis for disaster resilience funding** in India.

### 20. Answer: (a) Both Statement-I and Statement-II are correct and Statement-II explains Statement-I

#### Explanation:

#### 1) Core Concept

- EIA 2006 (under EPA 1986): mandates **public consultation** for projects.
- Exemption now extended to **defence-linked & strategic mineral mining projects**.

#### 2) Why Both Statements Correct

- (I):  Strategic mining projects (atomic/critical minerals) = exempted from **public hearings**.
- (II):  Justification = secure **supply chains**, reduce imports, & fast-track approvals.
- (II explains I): Exemption exists *because of* security & supply needs.

#### 3) Current Relevance

- India imports >90% of lithium, cobalt → exemption ensures **domestic resource security**.
- Debate continues over **environment vs strategic needs**.

#### 4) Keywords

- EIA 2006; Critical minerals; Defence projects; National security; Exemption

5) Conclusion  Exemption = balance between **national security** priorities and **environmental democracy**.

### 21. Answer: (c) Rock or sediment formations containing freshwater located beneath the sea floor

#### Explanation:

#### 1) Core Concept

- **Offshore aquifers** = underground freshwater reservoirs beneath the seabed.
- Potential source for **water-scarce regions**, especially with **climate-induced droughts**.

#### 2) Why Correct (c)

- Freshwater trapped in **rock/sediment formations** under the ocean.
- **Cap rock** prevents seawater mixing.
- May hold **up to 10% of global fresh groundwater**.

#### 3) Why Others Wrong

- (a):  Not saline bodies.
- (b):  Not oil/gas reservoirs.
- (d):  Not volcanic/mineral deposits.

#### 4) Current Relevance

- Viewed as **strategic reserves** for future freshwater security.

#### 5) Keywords

- Offshore aquifers; Freshwater reserves; Cap rock; Water security

6) Conclusion → Offshore aquifers = **hidden freshwater frontier** with high potential but technical/ecological challenges.

22. Answer: (b) II only

Explanation:

### 1) Core Concept

- REMs = strongest permanent magnets, used in EVs, **renewable energy, defense tech.**
- Made from alloys of **rare earth elements** like neodymium, praseodymium, dysprosium.

### 2) Correct Statement

- (II):  REMs are made from rare earth alloys (Nd, Pr, Dy).

### 3) Incorrect Statement

- (I):  India not self-sufficient → imports almost all REMs despite 5th largest reserves.

### 4) Current Relevance

- Supply chain risks (China dominates global REM processing).
- India pushing for **domestic REM production & processing**.

### 5) Keywords

- REMs; Neodymium; EVs; Supply chain; Import dependence

6) Conclusion → REMs = **strategic technology enablers**, India still **import-dependent**.

23. Answer: (c) Both I and II

Explanation:

### 1) Correct Statements

- (I):  Located beneath the sea, extending up to **90 km offshore**.
- (II):  Cap rock of clay-rich sediments prevents seawater mixing.

### 2) Significance

- Could act as **buffer reserves** against water scarcity.
- Challenges = **high cost, ecological risks, governance issues**.

### 3) Keywords

- Offshore aquifers; 90 km extension; Cap rock; Climate resilience

4) Conclusion → Offshore aquifers = **critical but underexplored freshwater reserves**.

24. Answer: (b) I and IV only

Explanation:

### 1) Core Concept

- **Qatar** = small Gulf state, **major LNG exporter**, influential in West Asia.

### 2) Correct Statements

- (I):  Shares **land border with Saudi Arabia**.
- (IV):  Capital = **Doha**.

### 3) Incorrect Statements

- (II):  Has 3rd largest **natural gas reserves**, not oil.
- (III):  Borders Persian Gulf/Gulf of Bahrain, but not included in answer key.

### 4) Current Relevance

- Major **natural gas supplier**, hosts **2022 FIFA World Cup**, important for **India's energy ties**.

### 5) Keywords

- Qatar; Doha; Saudi border; Natural gas hub; Gulf geopolitics

6) Conclusion → Qatar = **energy-rich Gulf power**, key to India's **energy security**.

25. Answer: (a) I, III and IV only

Explanation:

### 1) Core Concept

- **Adi Sanskriti** = digital platform to **preserve, promote & market tribal artforms**.
- First global initiative dedicated to **tribal knowledge systems**.

### 2) Correct Statements

- (I):  Adi Haat = online tribal artisan marketplace (linked with **TRIFED**).
- (III):  World's first **digital tribal art learning platform**.
- (IV):  Adi Sampada = repository covering 5 themes (artefacts, livelihood, traditions).

### 3) Incorrect Statement

- (II):  Adi Vishwavidyalaya offers **45+ courses**, not limited to dance & music.

### 4) Current Relevance

- Launched by **Ministry of Tribal Affairs** to **empower tribal communities digitally**.

### 5) Keywords

- Adi Sanskriti; TRIFED; Digital tribal heritage; Adi Haat; Adi Sampada

6) Conclusion → Adi Sanskriti = **digital empowerment of tribal communities** through **heritage + livelihoods**.

26. Answer: (d) I, II and III

Explanation:

### 1) Core Concept

- **Mauritius** = India's closest partner in the **Indian Ocean Region (IOR)**.
- Ties built on **diaspora, security, and economic partnerships**.

### 2) Correct Statements

- (I):  Mauritius is central to India's **MAHASAGAR Vision** and **Neighbourhood First Policy**.
- (II):  First Girmitiyas (indentured labourers) taken from **Puducherry in 1729**.
- (III):  ~70% of Mauritian population is of **Indian origin**.

### 3) Current Relevance

- India provides **defence cooperation, Line of Credit, infrastructure aid.**
- Mauritius supports India in **IOR security & regional diplomacy.**

### 4) Keywords

- MAHASAGAR Vision; Neighbourhood First; Girmitiya; Diaspora diplomacy**

### 5) Conclusion

➡ Mauritius = **strategic, cultural, and economic bridge** for India in the IOR.

**27. Answer: (c) II and III only**

**Explanation:**

### 1) Core Concept

- SSLV** = new generation ISRO launcher for **small satellites** ( $\leq 500$  kg).

### 2) Correct Statements

- (II):**  Designed for **rapid, on-demand launches.**
- (III):**  Launches satellites up to **500 kg** into **LEO.**

### 3) Incorrect Statement

- (I):**  **SSLV** = **3 solid propulsion stages + 1 liquid-based terminal stage** (not all solid).

### 4) Current Relevance

- Competes in **global small-satellite market.**
- Supports **India's space commercialization & Gaganyaan ecosystem.**

### 5) Keywords

- SSLV; ISRO; 500 kg LEO; On-demand launch**

### 6) Conclusion

➡ **SSLV** = India's tool for **affordable, quick space access.**

**28. Answer: (d) I and II only**

**Explanation:**

### 1) Core Concept

- Black Aspergilli** = group of filamentous fungi with dual roles in **industry & health.**

### 2) Correct Statements

- (I):**  Some species = **pathogenic & carcinogenic.**
- (II):**  Widely used in **citric acid production & fermentation.**

### 3) Incorrect Statement

- (III):**  Not restricted to agriculture → major role in **industrial biotech.**

### 4) Current Relevance

- New species found in **Western Ghats** (India).
- Opportunities in **food processing + risks in biosafety.**

### 5) Keywords

- Black Aspergillus; Citric acid; Fermentation; Pathogenic fungi**

### 6) Conclusion

➡ **Black Aspergilli** = **industrial assets + biosafety concerns.**

**29. Answer: (a) I, II and III**

**Explanation:**

### 1) Core Concept

- NIC** = classification system for **economic activities**, vital for policy & statistics.

### 2) Correct Statements

- (I):**  First introduced in **1962** as **Standard Industrial Classification.**
- (II):**  Codes classify activities into **sectors, subsectors, detailed activities.**
- (III):**  Used in **policy-making & surveys** at central/state levels.

### 3) Current Relevance

- Draft **NIC 2025** (revision of NIC 2008) → aligns with **global standards.**

### 4) Keywords

- NIC 1962; NIC 2008/2025; Economic classification; Policy planning**

### 5) Conclusion

➡ **NIC** = backbone of **economic governance & statistical analysis** in India.

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

**Explanation:**

### 1) Core Concept

- Rare Earth Magnets (REMs):** made from **Nd-Pr-Dy alloys**, strongest permanent magnets.
- Critical for **EVs, wind turbines, defence tech.**

### 2) Correct Statements

- (I):**  REMs are vital for functioning of **advanced technology supply chains.**
- (II):**  Their strength comes from **unique alloy composition.**
- Explanation Link:** II explains I → composition → technological indispensability.

### 3) Current Relevance

- India has reserves but lacks **processing & manufacturing.**
- China dominates **global REM supply chains** → vulnerability.

### 4) Keywords

- REMs; Nd-Pr-Dy alloys; EVs; Supply chain risk**

### 5) Conclusion

➡ **REMs** = **strategic backbone of modern industries**, supply chain security is vital.

### 31. Answer: (b) CLAMP reconstructs past climate conditions

Explanation:

#### 1) Core Concept

- CLAMP = method of analyzing **fossil leaf morphology** to infer **paleoclimate**.
- Fossil leaves = "climate fingerprints."

#### 2) Mechanism

- Examines **leaf size, margin, and shape** → indicators of **rainfall, humidity, and temperature**.

#### 3) Significance

- Nagaland study: showed how **Antarctica's shifts influenced Indian monsoon**.
- Useful where other records (ice cores, sediments) are absent.

#### 4) Keywords

- CLAMP; Fossil leaves; Monsoon history; Paleoclimate reconstruction

#### 5) Conclusion

➡ CLAMP = vital tool for **reconstructing Earth's past climates**, improving predictions of **future warming effects**.

### 32. Answer: (c) Leatherback Turtles and Nicobar Megapode

Explanation:

#### 1) Core Concept

- Galathea Bay = globally recognized **primary nesting site** for **endangered species**.

#### 2) Correct Species

- Leatherback Turtle (Schedule I, WPA 1972).
- Nicobar Megapode (Schedule I, WPA 1972).

#### 3) Incorrect Species

- (a): Olive Ridley & Indian Skimmer ✗
- (b): Green Turtle & Siberian Crane ✗
- (d): Hawksbill Turtle & Gangetic Dolphin ✗

#### 4) Relevance

- Development projects in Nicobar = concerns of **habitat loss + indigenous rights**.

#### 5) Keywords

- Galathea Bay; Leatherback Turtle; Nicobar Megapode; Biodiversity hotspot

#### 6) Conclusion

➡ Galathea Bay = **critical conservation zone**, balancing **development vs biodiversity**.

### 33. Answer: (c) Advocated for Linguistic Reorganization of States as Home Minister

Explanation:

#### 1) Core Concept

- GB Pant: **freedom fighter, first CM of Uttar Pradesh, later Union Home Minister (1955–1961)**.

#### 2) Major Contributions

- Key role in **States Reorganisation Act (1956)** → linguistic basis of states.
- Promoted **administrative efficiency + federal balance**.

#### 3) Incorrect Options

- (a): Not Chief Justice ✗
- (b): Constitution drafting led by **B.R. Ambedkar** ✗
- (d): INA founded by **Subhas Chandra Bose** ✗

#### 4) Keywords

- GB Pant; States Reorganisation Act; Federalism; Home Minister

#### 5) Conclusion

➡ GB Pant = architect of **linguistic reorganization**, strengthening **national unity & federalism**.

### 34. Answer: (a) I and II only

Explanation:

#### 1) Core Concept

- UKIIFB = joint initiative for **mobilizing global capital** into India's infrastructure sector.

#### 2) Correct Statements

- (I): ✓ Joint project between **NITI Aayog & City of London**.
- (II): ✓ Aims to align India's **procurement standards** with international norms.

#### 3) Incorrect Statement

- (III): ✗ Not launched at COP26 → mislink.

#### 4) Current Relevance

- Strengthens India-UK economic cooperation.
- Helps address **risk management & transparency** in infrastructure financing.

#### 5) Keywords

- UKIIFB; NITI Aayog; City of London; Infrastructure finance

#### 6) Conclusion

➡ UKIIFB = bridge for **global investment flows into India's infrastructure**.

### 35. Answer: (b) II only

Explanation:

#### 1) Core Concept

- VP election = conducted differently from President's election.

#### 2) Correct Statement

- (II): ✓ Uses **Proportional Representation by Single Transferable Vote (STV) + Secret Ballot**.

#### 3) Incorrect Statement

- (I): ✗ Electoral College includes **all MPs of Lok Sabha & Rajya Sabha (elected + nominated)**, not just elected.

### 4) Significance

- Ensures **broad consensus**, avoids **partisan domination**.
- VP = ex-officio **Chairperson of Rajya Sabha**.

### 5) Keywords

- VP election; STV; Proportional representation; Electoral college**

### 6) Conclusion

→ VP election = designed for **independence, inclusivity, and legitimacy**.

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

**Explanation:**

### 1) Core Concept

- NCAP** = India's flagship mission to fight **urban air pollution**.
- Launched to achieve measurable reductions in **particulate matter (PM10, PM2.5)**.

### 2) Correct Statements

- (II): ✓** Target = up to **40% reduction in PM10** by 2025–26 (baseline 2019–20).
- (III): ✓** Launched in **2019** by **MoEFCC**.
- (IV): ✓** Covers **131 cities in 24 States/UTs**.

### 3) Incorrect Statement

- (I): ✗** Implementing agency = **CPCB**, not Ministry of Urban Development.

### 4) Current Relevance

- Cities monitored via **PRANA portal**.
- Critical for **public health, SDGs, climate co-benefits**.

### 5) Keywords

- NCAP; CPCB; PRANA portal; PM10 reduction target**

### 6) Conclusion

→ NCAP = cornerstone of India's **urban environmental governance**.

**37. Answer: (d) I, II and III only**

**Explanation:**

### 1) Core Concept

- FRA** = legislation to **correct historical injustices** to forest-dwelling communities.

### 2) Correct Statements

- (I): ✓** Recognizes **individual & community rights**.
- (II): ✓** Claims verified by **District Level Committees**.
- (III): ✓** Officially called *Scheduled Tribes & Other Traditional Forest Dwellers (Recognition of Forest Rights) Act*.

### 3) Incorrect Statement

- (IV): ✗** FRA recognizes both **individual & community rights** for **PTVGs**, not just individual.

### 4) Broader Impact

- Balances **tribal welfare + biodiversity conservation**.

- Strengthens **participatory forest governance**.

### 5) Keywords

- FRA 2006; PVTGs; Individual & community rights; DLC verification**

### 6) Conclusion

→ FRA = tool for **social justice + sustainable conservation**.

**38. Answer: (c) Statement I is true, Statement II is false**

**Explanation:**

### 1) Core Concept

- IES** = Digital Public Infrastructure for India's **power sector**.
- Designed as an **open, interoperable ecosystem**.

### 2) Correct Statement

- (I): ✓** Conceptualized by **Ministry of Power** as a DPI.

### 3) Incorrect Statement

- (II): ✗** Not meant to centralize/restrict access → aims at **collaboration & innovation**.

### 4) Current Relevance

- Utility Intelligence Platform** under development.
- Stakeholder survey launched for adoption.

### 5) Keywords

- IES; DPI; Ministry of Power; Interoperability**

### 6) Conclusion

→ IES = future of **digital governance in energy sector**, enabling **efficiency & innovation**.

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

**Explanation:**

### 1) Core Concept

- Childhood obesity crisis** linked to **aggressive expansion of UPFs**.

### 2) Correct Statements

- (I): ✓** Global rise in childhood obesity strongly tied to **availability & affordability of UPFs**.
- (II): ✓** Subsidies for raw ingredients + long shelf life make UPFs **cheap & accessible**, especially for poor families.

### 3) Global Significance

- Childhood obesity **doubled since 2000**.
- Particularly alarming in **South Asia**.

### 4) Keywords

- UPFs; Childhood obesity; Agricultural subsidies; Food affordability**

### 5) Conclusion

→ UPFs = structural driver of **childhood obesity**, requiring **stronger food policies & regulation**.

### 40. Answer: (d) None

Explanation:

#### 1) Core Concept

- VP = **second-highest constitutional office**; ex-officio **Chairman of Rajya Sabha**; successor to President (if vacancy).

#### 2) Article-wise Breakdown

- **Article 63:** *India shall have a Vice-President.*
- **Article 64:** VP shall be **Chairman of Rajya Sabha**.
- **Article 65:** VP acts as **President in case of vacancy**.

#### 3) Given Pairs

- **Pair 1:**  Mismatched (Article 64 wrongly described).
- **Pair 2:**  Mismatched (Article 65 wrongly described).
- **Pair 3:**  Mismatched (Article 63 wrongly described).

#### 4) Keywords

- **Articles 63–65; Vice-President; Succession; Rajya Sabha Chairperson**

#### 5) Conclusion

➡ None of the pairs are correct → Answer = **(d) None**.

### 41. Answer: (c) They can be developed rapidly once a virus's genetic sequence is known

Explanation:

- **Core Concept:** mRNA vaccines deliver genetic instructions → host cells produce **antigen protein** → immune response without live virus.
- **Advantages:** Speed, adaptability, strong immune activation.
- **Correct Option:**
  - (c):  Development is fast once viral sequence is available (seen during COVID-19).
- **Incorrect Options:**
  - (a):  Require ultra-cold storage.
  - (b):  Do not use live virus.
  - (d):  Still need antibodies and T-cells for immunity.

**Keywords:** mRNA, lipid nanoparticles, rapid design, COVID-19.

**Conclusion:** mRNA = **transformative platform for future pandemics**.

### 42. Answer: (a) NSIL is the commercial arm of ISRO

Explanation:

- **Core Concept:** NSIL = created to separate **commercial operations** from ISRO's R&D.
- **Functions:** Handles **satellite launches, marketing of space services, tech transfers**.
- **Correct Option:**
  - (a):  NSIL commercializes ISRO's portfolio.
- **Incorrect Options:**
  - (b):  ISRO = parent R&D body.
  - (c):  DSMB does not exist.
  - (d):  IN-SPACe = regulator/facilitator, not commercial arm.

**Keywords:** NSIL, commercialization, ISRO, private participation.

**Conclusion:** NSIL = driver of India's **space economy monetization**.

### 43. Answer: (c) I and II only

Explanation:

- **Core Concept:** mRNA vaccines = safe, flexible platform for **infectious diseases + cancer therapies**.
- **Correct Statements:**
  - (I):  Trigger both **antibody & T-cell** responses.
  - (II):  Do not use live virus → **safety advantage**.
- **Relevance:** Beyond COVID-19, adapted for **personalized cancer treatment**.

**Keywords:** Antibody, T-cell, cancer therapy, safe vaccines.

**Conclusion:** mRNA = **dual advantage: rapid infectious disease response + precision medicine**.

### 44. Answer: (a) I only

Explanation:

- **Core Concept:** Cholesterol = vital lipid but imbalance → cardiovascular risks.
- **Correct Statement:**
  - (I):  HDL = "good cholesterol" → removes excess LDL.
- **Incorrect Statement:**
  - (II):  LDL = "bad cholesterol" → artery blockages.

**Keywords:** HDL, LDL, lifestyle disease, preventive healthcare.

**Conclusion:** Managing cholesterol = **cornerstone of NCD prevention**.

### 45. Answer: (a) I only

Explanation:

- **Core Concept:** 2FA = extra security layer beyond password.
- **Correct Statement:**
  - (I):  Even if password compromised, 2FA reduces breach risk.
- **Incorrect Statement:**
  - (II):  Not all 2FA needs physical key; OTPs, biometrics also valid.

**Keywords:** 2FA, cybersecurity, OTP, biometrics.

**Conclusion:** 2FA = **essential safeguard in digital governance & financial security**.

### 46. Answer: (c) I and II only

Explanation:

- **Core Concept:** Mhadei Wildlife Sanctuary = notified in **1999 (WPA, 1972)**; important ecological reserve in Goa.
- **Correct Statements:**
  - (I):  Mahadei (Mandovi) River flows through the sanctuary.
  - (II):  Home to rare species like **Ashoka tree with saffron flowers**.
- **Context:** Proposed as **Tiger Reserve**, site of legal-political debate.
- **Incorrect Associations:** Not bordering Kerala (actually Karnataka & Maharashtra).

**Keywords:** Mhadei WLS, Mandovi River, Ashoka tree, Tiger Reserve proposal.

**Conclusion:** Mhadei = **biodiversity hotspot** and **critical conservation battleground** in Goa.

### 47. Answer: (a) I only

Explanation:

- **Core Concept:** Aadhaar = India's **digital identity system**; administered by **UIDAI**.
- **Correct Statement:**

- (I):  Section 7 allows Aadhaar linkage for welfare benefits from Consolidated Fund.
- **Incorrect Statement:**
  - (II):  SC (Puttaswamy, 2018) capped data storage to **6 months**, not indefinite.

**Keywords:** UIDAI, Section 7, Right to Privacy, Direct Benefit Transfer.

**Conclusion:** Aadhaar = **efficiency + inclusion**, but **privacy safeguards essential**.

**48. Answer: (c) I and II only**

**Explanation:**

- **Core Concept:** UPU = specialized UN agency coordinating **global postal cooperation**.
- **Correct Statements:**
  - (I):  Established 1874; became UN specialized agency in 1948.
  - (II):  India is a member; UPU is **second oldest international organization** after ITU.
- **Relevance:** Facilitates **cross-border mail, remittances, postal reforms**.

**Keywords:** UPU 1874, Berne HQ, ITU, global postal integration.

**Conclusion:** UPU = **pillar of global connectivity & financial inclusion**.

**49. Answer: (c) I and II only**

**Explanation:**

- **Core Concept:** ULLAS = **centrally sponsored scheme** under Ministry of Education; operational 2022–27.
- **Correct Statements:**
  - (I):  Centrally sponsored scheme.
  - (II):  Focus on adults 15+ → functional literacy + life skills.
- **Relevance:** Linked with **NEP 2020** goals; several States/UTs achieved **100% functional literacy**.

**Keywords:** ULLAS, NEP 2020, functional literacy, Ministry of Education.

**Conclusion:** ULLAS = **social empowerment through adult literacy**.

**50. Answer: (b) II only**

**Explanation:**

- **Core Concept:** Small wild cat of **Central Asian cold steppes**; rare in India (Arunachal Pradesh).
- **Correct Statement:**
  - (II):  Protected under **Schedule I of WPA, 1972**.
- **Incorrect Statement:**
  - (I):  IUCN = **Least Concern**, not Endangered.

**Keywords:** Pallas's cat, Arunachal Pradesh, Schedule I WPA, IUCN LC.

**Conclusion:** Pallas's cat = **indicator species of fragile mountain grasslands**, needs habitat protection despite IUCN "Least Concern" status.

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