

# Solutions

**DATE : 21st July- 27th July**

1) **◆ Correct Answer: (a) – *They assist plants in nutrient absorption and play a major role in soil carbon sequestration.***

❖ **Explanation in Detail:**

◆ **What are Mycorrhizal Fungi?**

- Mycorrhizal fungi are **mutualistic organisms** that form **symbiotic associations** with the roots of over **80%** of terrestrial plant species.
- They **extend the root surface area** through their hyphae, improving the plant's access to **phosphorus, nitrogen, and water**.

◆ **Key Ecological Functions:**

1. **Nutrient Absorption:**

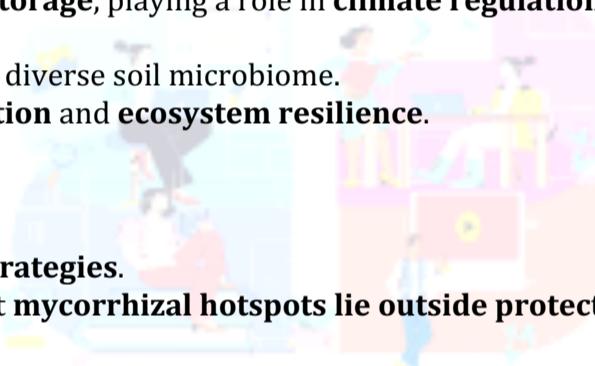
- These fungi enhance **phosphorus uptake**, crucial for plant growth.
- They also aid in the absorption of **micronutrients** like zinc and copper.

2. **Carbon Sequestration:**

- Use **plant-derived carbon (CO<sub>2</sub>)** and convert it into stable soil organic matter.
- Contribute to long-term **soil carbon storage**, playing a role in **climate regulation**.

3. **Soil Health & Biodiversity:**

- Improve **soil structure** and support a diverse soil microbiome.
- Play a critical role in **forest regeneration** and **ecosystem resilience**.



◆ **Policy and Conservation Significance:**

- Highlighted in **IPBES** and **UN biodiversity strategies**.
- A recent **scientific study (2023)** shows most **mycorrhizal hotspots lie outside protected areas**, indicating gaps in conservation planning.

◆ **Option Analysis:**

- **(a) Correct** – Clearly states the dual role in **nutrient uptake** and **carbon storage**.
- **(b)** – Decomposition of lignin is a function of **saprophytic fungi**.
- **(c)** – These fungi are **not pathogenic**; they **benefit crops**.
- **(d)** – **Nitrogen fixation** is done by **Rhizobium and cyanobacteria**, not mycorrhizal fungi.

2) **◆ Correct Answer: (c) – *A mobile app to capture geotagged crop images for analysis under PMFBY.***

❖ **Explanation in Detail:**

Wisdom leads to success

◆ **What is CROPIC?**

- Stands for **Collection of Real-time Observations & Photo of Crops**.
- Launched under **Pradhan Mantri Fasal Bima Yojana (PMFBY)** to ensure accurate crop monitoring.

◆ **Key Features:**

1. **Real-time Data Collection:**

- Field functionaries capture **geotagged images** of crop plots through the app.
- Ensures **transparency and accountability** in crop damage assessment.

2. **AI-Based Analysis:**

- Images are analyzed using **artificial intelligence** and **cloud computing** for damage prediction and yield estimation.

3. **Dashboard Access:**

- Centralized **dashboard** enables policymakers to monitor crop health dynamically.

◆ **Implementation Context:**

- Managed by **Ministry of Agriculture** in partnership with **insurance companies** and **state governments**.
- Addresses previous challenges of **manual verification delays** and **subjective assessment**.

◆ **Significance:**

- Promotes **financial resilience** among farmers.
- Reduces delay in **claim settlements** under PMFBY.
- Encourages **digital governance** in agriculture.

**◆ Option Analysis:**

- (c) **Correct** – Directly aligned with the purpose of **digital monitoring for PMFBY**.
- Others (a, b, d) misrepresent the function and domain of the app.

3) **◆ Correct Answer: (a) – A precision guided missile launched from UAVs, developed by DRDO.**

**❑ Explanation in Detail:****◆ What is ULPGM-V3?**

- Stands for **Unmanned Launched Precision Guided Missile - Version 3**.
- Developed by the **Defence Research and Development Organisation (DRDO)** as part of India's drive towards **strategic autonomy**.

**◆ Key Features:****1. Precision Targeting:**

- Equipped with **dual-mode seeker** (EO/IR), offering day & night capability.
- Can be guided mid-flight via a **two-way data link**.

**2. High Operational Flexibility:**

- Can be launched from **UAVs like Rustom-II**, enhancing surveillance-strike integration.
- Effective in **mountain warfare, anti-armour operations, and surgical strikes**.

**3. Strategic Impact:**

- Improves **India's rapid response capabilities**.
- Reduces dependency on foreign missile systems.

**◆ Implementation & Policy Context:**

- Part of **Atmanirbhar Bharat** and **Make in India in Defense** initiatives.
- Enhances India's **warfighting capabilities in high-altitude and border regions**.

**◆ Option Analysis:**

- (a) **Correct** – Matches technical description and operational intent.
- (b) – Not an **anti-submarine missile**.
- (c) – Not developed **jointly with Israel**.
- (d) – It is **not air-to-air**, but **UAV-to-ground**.

4) **◆ Correct Answer: (a) I only**

**❑ Explanation in Detail:****◆ What is "Hydrogen for Heritage"?**

- A government initiative to introduce **hydrogen-powered trains on heritage/hilly routes**.
- Supports **National Green Hydrogen Mission** and aligns with **India's energy transition goals**.

**◆ Key Features of Hydrogen Trains:****1. Green Hydrogen Fuel:**

- Produced using **electrolysis powered by renewable energy**.
- Fuel cells emit **only water vapor**, making it a **zero-emission** solution.

**2. Higher Energy Efficiency:**

- **Higher energy density than batteries**, suitable for **long-distance & heavy-duty** transport.

**3. Use of Existing Infrastructure:**

- Trains can run on **existing tracks**, eliminating the need for expensive electrification in remote regions.

**◆ Strategic Significance:**

- Boosts India's **green mobility mission**.
- Showcases innovation and heritage conservation.
- Supports India's **Net Zero 2070** goal.

**◆ Statement Analysis:**

- **Statement I: Correct** – Green hydrogen's energy density advantage is a key factor.
- **Statement II: Incorrect** – Can be run on **existing rail tracks**.

5) **◆ Correct Answer: (a) I only**

**❑ Explanation in Detail:**

**◆ What is APY?**

- Launched in **2015** for providing **pension security** to the **unorganized sector**.
- Administered by **PFRDA (Pension Fund Regulatory and Development Authority)**.

**◆ Key Features:**

1. **Target Group:**
  - Indian citizens aged **18-40 years**.
  - Excludes **income tax payers** (from October 2022 onwards).
2. **Pension Guarantee:**
  - Subscribers get **₹1000 to ₹5000** monthly pension after **age 60** based on their contribution.
3. **Voluntary, Auto-Debit Scheme:**
  - Monthly contribution from **bank-linked accounts**.
  - Government co-contribution available for early subscribers.

**◆ Social Significance:**

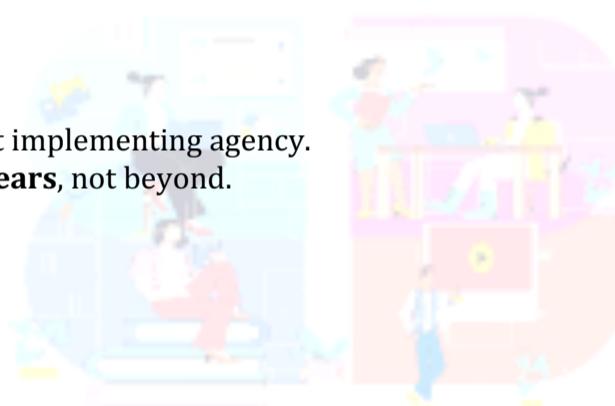
- Reduces old-age vulnerability.
- Promotes **financial inclusion** and **retirement planning** among low-income citizens.

**◆ Achievements:**

- Over **8 crore subscribers** as of 2025.
- Major success in states like **UP, Bihar, Maharashtra**.

**◆ Statement Analysis:**

- **Statement I: Correct** – PFRDA is the correct implementing agency.
- **Statement II: Incorrect** – Only for **18-40 years**, not beyond.

**6) Correct Answer: (a) I only****❑ Explanation in Detail:****◆ Topic in Focus:**

- **President's Rule** (Article 356) allows the Union Government to assume control over state administration if the constitutional machinery fails.
- It is a vital tool for maintaining **constitutional governance** in states.

**◆ Legal & Constitutional Framework:**

- **Article 356:** Allows proclamation if **President is satisfied** that the governance in a state cannot be carried on as per the Constitution.
- **Article 365:** A state's failure to comply with Union directions can trigger President's Rule.

**◆ Key Features:**

- Can be imposed **with or without Governor's recommendation**.
- Initially valid for **6 months**, extendable up to **3 years** with **Parliamentary approval every 6 months**.

**◆ Current Relevance:**

- Invoked in **Manipur (2023)** following political violence and breakdown of public order.
- Its repeated use has often raised concerns regarding **federal autonomy**.

**◆ Broader Impact:**

- While it ensures **constitutional integrity**, excessive use may **undermine cooperative federalism**.
- **S.R. Bommai Case (1994)** laid strict guidelines against arbitrary imposition.

**◆ Statement Analysis:**

- **Statement I: Correct** – Rule can be extended **up to 3 years**, in **6-month phases**.
- **Statement II: Incorrect** – **Governor's recommendation** is not **mandatory**.

**7) Correct Answer: (d) I and III only****❑ Explanation in Detail:****◆ Topic in Focus:**

- **ULPGM-V3** is an **advanced, indigenously developed missile** launched from **Unmanned Aerial Vehicles (UAVs)**.

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- Developed by DRDO, it enhances India's **precision strike** capabilities.

**◆ Technological Features:**

- Dual-Channel Seeker (Statement I: Correct)**
  - High-definition optical/infrared system for **all-weather precision targeting**.
- Day-Night Capability & Two-Way Data Link (Statement III: Correct)**
  - Can operate at night.
  - Data link** enables **mid-flight corrections** after launch.
- Deployment Scope (Statement II: Incorrect)**
  - Designed to work in **both plains and high-altitude areas**, including difficult terrains like Ladakh.

**◆ Strategic Significance:**

- Strengthens India's **ISR (Intelligence, Surveillance, Reconnaissance)** and strike integration.
- Supports **Atmanirbhar Bharat** in defense.

**8) Correct Answer: (c) II and IV only****Q Explanation in Detail:**

◆ **Topic in Focus:** E3: Informal grouping of **Germany, France, and the UK** formed post-Iraq War (2003) to coordinate **security and foreign policy** responses.

**◆ Relation with Iran & JCPOA:**

- E3 has played a key role in the **Iran nuclear deal (JCPOA)**.
- Snapback sanctions**: Mechanism to **reimpose UN sanctions** if Iran breaches the deal.

**◆ Clarification of Statements:**

- Statement I: Incorrect** – USA is not a member of E3; it was part of **P5+1**, a separate grouping.
- Statement II: Correct** – E3 emerged **after 2003 Iraq War**, focused on diplomacy with Iran.
- Statement III: Incorrect** – E3 is not a formal alliance, but a **flexible diplomatic coalition**.
- Statement IV: Correct** – Snapback sanctions are indeed a part of **JCPOA enforcement**.

◆ **Current Relevance:** In light of Iran's nuclear escalation, E3 remains a vital **European voice in non-proliferation diplomacy**.

**9) Correct Answer: (b) I, II, III and IV****Q Explanation in Detail:**

◆ **Topic in Focus:** RRTS is India's **semi-high-speed rail** system, designed to improve **intercity connectivity** across **urban-regional corridors**.

**◆ Key Objectives:**

- Statement I: Correct** – Connects **peri-urban** areas with cities to ensure **equitable regional development**.
- Statement II: Correct** – Reduces **travel time**, improves **worker productivity**.
- Statement III: Correct** – Aligned with **Smart Cities Mission** and **Make in India**.
- Statement IV: Correct** – With **40% of India's population** expected to be urban by 2030, RRTS is critical.

**◆ Policy and Implementation Context:**

- Managed by **NCRTC (National Capital Region Transport Corporation)**.
- First corridor: **Delhi-Meerut RRTS**, operational trials ongoing.

◆ **Significance:** Reduces **vehicular congestion**, lowers **carbon footprint**, improves **urban efficiency**.

**10) Correct Answer: (b) I, II and III****Q Explanation in Detail:**

◆ **Topic in Focus:** Indian legal system regulates **online obscenity** under IT laws and constitutional constraints.

**◆ Legal Provisions:**

- Section 67 of IT Act** – Prohibits **publishing or transmitting obscene material** electronically.
- Section 67A** – Targets **sexually explicit content** and **pornographic material**.

**◆ Constitutional Framework:**

- Article 19(1)(a) grants freedom of speech.
- Article 19(2) allows reasonable restrictions in the interests of decency, morality, public order.

◆ **Judicial Interpretations:**

- **Aveek Sarkar v. State of West Bengal (2014)** – Obscenity judged by **contemporary standards**.
- Courts balance **artistic freedom** with **public morality**.

◆ **Statement Clarification:**

- **Statement I: Correct** – Obscene content is **not protected** under freedom of speech.
- **Statement II: Correct** – Article 19(2) allows restrictions on such speech.
- **Statement III: Correct** – IT Act provides **clear penal provisions**.

◆ **Current Relevance:**

- OTT platforms, social media, and AI-generated content raise regulatory concerns.
- **2023 Guidelines for Online Platforms** emphasize accountability and grievance redressal.

11) **Correct Answer: (b) Both Statement I and II are correct, but Statement II does not explain Statement I**

❑ **Explanation in Detail:**

◆ **Topic in Focus:** Coral reefs are **biodiversity hotspots**, supporting nearly **25% of marine life** despite occupying **only ~1% of the ocean floor**.

◆ **Key Ecological Facts:**

- Require **clear, warm, shallow waters** with **stable salinity** (typically 23–29°C).
- Thrive in depths **less than 60 meters** for optimal sunlight access.



◆ **Indian Distribution:**

- Major coral reef regions:
  - **Andaman & Nicobar Islands** (largest area)
  - **Lakshadweep** (atolls)
  - **Gulf of Mannar**, Tamil Nadu
  - **Gulf of Kutch**, Gujarat

◆ **Conservation Context:**

- Protected under initiatives like:
  - **Coastal Regulation Zone (CRZ) notifications**
  - **UN SDG 14 – Life Below Water**
  - **Marine Protected Areas (MPAs)**



◆ **Statement Analysis:**

- **Statement I: Correct** – Coral reefs are ecologically productive ecosystems.
- **Statement II: Correct** – They need stable, clear, shallow marine environments, but this is a **condition of survival**, not a reason for productivity.
- Hence, **Statement II does not explain Statement I**.

12) **Correct Answer: (a) Only one**

❑ **Explanation in Detail:**

◆ **Topic in Focus:** Traditional art forms reflect **regional identity, tribal spirituality, and community-based narratives**.

◆ **Art Forms and Their Regions:**

- **Sohrai – Jharkhand:** Tribal wall paintings during the harvest season.
- **Pattachitra – Odisha:** Cloth scroll paintings with themes from Jagannath and epics.
- **Patua – West Bengal:** Narrative scroll art sung by **patuas**.

◆ **Significance:**

- Promoted through **Kala Utsav, GI tagging, and cultural tourism**.
- Symbolize **intangible cultural heritage** under **UNESCO 2003 Convention**.

◆ **Pair Analysis:**

- Pair 1: Incorrect (Pattachitra ≠ Jharkhand)
- Pair 2: Incorrect (Sohrai ≠ Odisha)

- Pair 3: Correct (Patua = West Bengal)

13) Correct Answer: (b) A folk painting stitched onto cloth scrolls, originating from West Bengal

Explanation in Detail:

◆ Topic in Focus: Patua Art is a **narrative scroll painting tradition**, often accompanied by storytelling songs called "**Pater Gaan**."

◆ Key Features:

- Made on **cloth scrolls**, using natural colors.
- Often **stitched or rolled**, telling **religious, social, or political stories**.
- Practiced by **Muslim and Hindu artisans**.

◆ Current Relevance:

- Supported through programs like:
  - **Artists in Residence Programme at Rashtrapati Bhavan**
  - **Cultural mapping under Ministry of Culture**

◆ Option Analysis:

- (a) – Incorrect: Not a metal craft.
- (b) – **Correct**.
- (c) – Incorrect: Not wood-based.
- (d) – Kerala mural art is distinct in style and region.

14) Correct Answer: (d) It is India's independent regional navigation satellite system providing precise position data in India and up to 1500 km beyond its borders

Explanation in Detail:

◆ Topic in Focus: NavIC (Navigation with Indian Constellation) is India's **indigenous GPS alternative**, managed by **ISRO**.

◆ Key Features:

- **7 satellites**: 3 in geostationary, 4 in geosynchronous orbits.
- **Coverage**: India + **1500 km beyond borders**.
- Provides:
  - **SPS (Standard Positioning Service)** for civilian use.
  - **RS (Restricted Service)** for authorized users like military.

◆ Strategic Importance:

- Reduces **dependence on GPS/GLONASS**.
- Used in **transport navigation, disaster management, military targeting, and smartphones**.

◆ Current Status:

- **ISRO & Qualcomm** integrating NavIC into mobile chipsets.
- Mandatory for certain navigation-enabled consumer devices post-2025.

15) Correct Answer: (b) Ministry of Minority Affairs

Explanation in Detail:

◆ Topic in Focus: Pradhan Mantri Virasat Ka Samvardhan (PM VIKAS) is a **Central Sector Scheme** for the **holistic development** of six notified minorities.

◆ Merged Schemes Under PM VIKAS:

1. **USTTAD** – Artisans' skill development
2. **Nai Roshni** – Women leadership
3. **Seekho aur Kamao** – Skill training
4. **Nai Manzil** – Education + skill integration
5. **Hamari Dharohar** – Cultural preservation

◆ Implementation Context:

- Launched in **FY 2022-23**.
- Targets **Muslims, Christians, Sikhs, Buddhists, Jains, and Parsis**.
- Administered by the **Ministry of Minority Affairs**.

**◆ Current Relevance:**

- Empowers minority communities with **market-relevant skills**.
- Aligns with **Skill India Mission** and **Atmanirbhar Bharat**.

**◆ Option Analysis:**

- (a) – Incorrect: Ministry of Labour not involved here.
- (b) – **Correct**.
- (c) & (d) – Incorrect: No administrative role in PM VIKAS.

16) **Correct Answer: (c) Depth less than 50 meters for sufficient sunlight penetration**

**❖ Explanation in Detail:****◆ Topic in Focus:** Coral reefs are sensitive ecosystems that require **specific environmental conditions** to grow, such as:

- **Stable temperature (23-29°C)**
- **Clear, unpolluted water**
- **Depths less than 50 meters**
- **Stable salinity**
- **Hard substrate for attachment**

**◆ Why Depth Matters:**

- Corals rely on **zooxanthellae algae** for photosynthesis, which requires **sunlight**.
- Shallow depths (<50 m) ensure sufficient **light penetration**.

**◆ Indian Context:**

- Found in **Andaman & Nicobar Islands, Gulf of Mannar, Gulf of Kachchh, Lakshadweep**.
- Threatened by **marine heatwaves, coral bleaching, and coastal pollution**.

**◆ Option Analysis:**

- (a) – Incorrect: Temperature should be warm (not <18°C).
- (b) – Incorrect: High sedimentation **blocks sunlight** and **chokes coral polyps**.
- (c) – **Correct**.
- (d) – Incorrect: Corals require **stable salinity**, not fluctuating.

17) **Correct Answer: (d) I only**

**❖ Explanation in Detail:****◆ Topic in Focus:** The **Comprehensive Economic and Trade Agreement (CETA)** is a **bilateral trade pact** between **India and the UK** (often confused with Canada-EU CETA).**◆ Key Provisions:**

- **Eliminates tariffs on:**
  - 99% of **Indian tariff lines**
  - 90% of **UK tariff lines**
- **Professional mobility, services access, and public procurement.**
- Covers sectors: **Textiles, Pharma, IT, MSMEs**

**◆ Statement Analysis:**

- **Statement I: Correct** – Accurately reflects tariff elimination commitment.
- **Statement II: Incorrect** – Contrary to fact; **Indian MSMEs are allowed** to participate in UK's public procurement.

18) **Correct Answer: (b) II only**

**❖ Explanation in Detail:****◆ Topic in Focus:** PM VIKAS is a **Central Sector Scheme** launched by the **Ministry of Minority Affairs** to empower **six notified minority communities** through:

- **Skill development**
- **Leadership training**
- **Preservation of traditional arts**
- **Educational empowerment**

**◆ Minoriites Covered:**

1. **Muslims**
2. **Christians**
3. **Sikhs**
4. **Buddhists**
5. **Jains**
6. **Parsis (Zoroastrians)** 

**◆ Statement Analysis:**

- **Statement I: Incorrect** – Parsis are among the notified minorities.
- **Statement II: Correct** – Scheme merges five earlier schemes to streamline delivery.

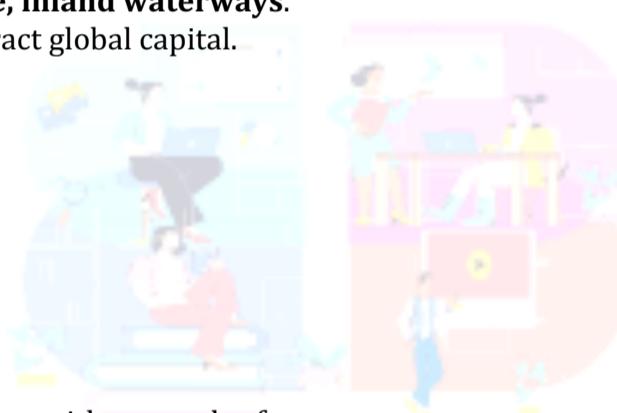
19) Correct Answer: (d) I and II only

 **Explanation in Detail:**

◆ **Topic in Focus:** The Maritime Development Fund (MDF) is a proposed financial mechanism to **boost India's shipping and maritime infrastructure**.

**◆ Key Features:**

- **A blended finance instrument.**
- Supports **shipyards, coastal infrastructure, inland waterways**.
- Complements **100% FDI in shipping** to attract global capital.

**◆ Benefits:**

- Reduces **logistics cost**
- Attracts **private investment**
- Enhances **Blue Economy** targets

**◆ Statement Analysis:**

- **Statement I: Correct** – 100% FDI policy aligns with sectoral reforms.
- **Statement II: Correct** – MDF's intent is to drive **long-term investments** in the sector.

20) Correct Answer: (c) I and II only

 **Explanation in Detail:**

◆ **Topic in Focus:** DTAA are **bilateral treaties** signed by India with other countries to **avoid taxing the same income twice**.

**◆ Key Components:**

- **Defines Tax Residency.**
- Identifies **Permanent Establishment**.
- Provides **relief via tax credit or exemption methods**.

**◆ Significance:**

- Reduces tax burden for:
  - **NRIs, PIOs, OCIs**
  - **Foreign investors & companies**
- Encourages **cross-border trade and FDI inflows**

**◆ Statement Analysis:**

- **Statement I: Correct** – Provides relief to the diaspora.
- **Statement II: Correct** – Main objective is to **prevent double taxation**.

21) Correct Answer: (a) Both Statement I and II are correct and Statement II explains Statement I

 **Explanation in Detail:**

◆ **Topic in Focus:** The National Policy on Biofuels (2018), amended in 2022, is a landmark policy for advancing **ethanol blending in petrol**, promoting energy diversification, climate resilience, and **farm income support**.

**◆ Key Features:**

**1. Advancement of Targets:**

- o 20% ethanol blending goal was preponed from 2030 to 2025-26 via the 2022 amendment.

**2. Expanded Feedstock Base:**

- o Ethanol can now be produced from:
  - Surplus food grains
  - Sugarcane juice
  - Damaged grains
  - Non-edible feedstocks

**◆ Significance:**

- Reduces **crude oil imports**
- Enhances **forex savings** (₹1.36 lakh crore till 2025)
- Boosts **farm income** (~₹1.2 lakh crore to farmers)
- Promotes a **circular bioeconomy**

**◆ Statement Analysis:**

- **Statement I: Correct** – Target was revised to 2025-26.
- **Statement II: Correct & explains I** – Expanded feedstocks are essential to meet the accelerated target.

22) Correct Answer: (c) Statement I is correct, but Statement II is incorrect

**Q Explanation in Detail:**

◆ **Topic in Focus:** This question assesses **progressivity in taxation** under **GST**, which replaced multiple indirect taxes with a unified structure.

**◆ Key Features:**

1. **Multiple Slabs & Exemptions:** Essentials like **food, healthcare, education** either **exempted** or taxed at **5% or lower**.
2. **Tax Burden Distribution:** Studies show **rich households** contribute **more** to GST collections, making it **progressive**.

**◆ Policy Significance:**

- Promotes **fiscal equity**
- Supports **poor households** via **lower indirect tax exposure**

**◆ Statement Analysis:**

- **Statement I: Correct** – GST is found to reduce post-tax inequality.
- **Statement II: Incorrect** – Increasing lower slab rates would **increase** burden on the poor, not reduce it.

23) Correct Answer: (b) Naval expeditions against the Srivijaya Empire

**Q Explanation in Detail:**

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Wisdom leads to success

◆ **Topic in Focus:** **Rajendra Chola I (1014–1044 CE)** was one of India's greatest **naval emperors**, son of Rajaraja I.

**◆ Key Achievements:**

1. **Naval Campaigns:**
  - o Notably invaded the **Srivijaya Empire** (modern-day Indonesia and Malaysia).
  - o Asserted Indian dominance over **Southeast Asian maritime trade routes**.
2. **Cultural & Political Legacy:**
  - o Founded **Gangaikonda Cholapuram**
  - o Spread **Shaivism**, Indian culture & architecture

**◆ Statement Analysis:**

- (a) – Incorrect: Pallavas declined before Cholas rose.
- (b) –  Correct.
- (c) – Incorrect: Thanjavur was capitalized by **Vijayalaya Chola**.
- (d) – Incorrect: Sun Temple was built by the **Eastern Ganga dynasty**.

24) Correct Answer: (b) II only

**Q Explanation in Detail:**

◆ **Topic in Focus:** Chikungunya is a **mosquito-borne viral disease** transmitted by **Aedes aegypti** and **Aedes albopictus**.

**◆ Key Aspects:**

1. **Symptoms:** Sudden fever, joint pain, rashes.
2. **No Specific Cure:** No antiviral drug; treatment is **supportive** (hydration, pain relief).
3. **Policy Response:** Managed under **National Vector Borne Disease Control Programme (NVBDCP)**.

◆ **Statement Analysis:**

- **Statement I: Incorrect** – No specific antiviral treatment exists.
- **Statement II: Correct** – Transmitted by mosquitoes, caused by **chikungunya virus**.

25) **Correct Answer: (a) I only**

🔍 **Explanation in Detail:**

◆ **Topic in Focus:** The **Henley Passport Index** ranks global passports based on **visa-free or visa-on-arrival access**.

◆ **Key Features:**

1. **Source of Data:** Compiled using **IATA (International Air Transport Association)** data.
2. **Ranking Basis:** Number of countries passport holders can visit **without prior visa**.

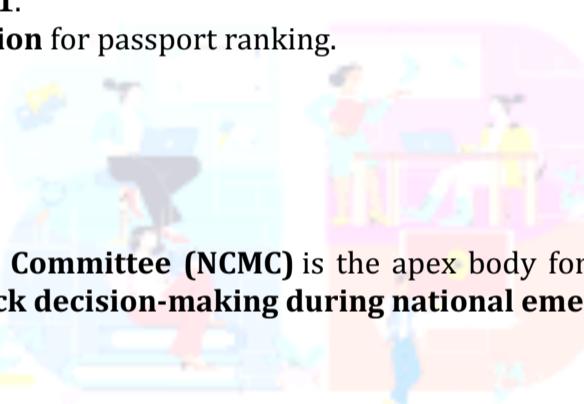
◆ **Current Status:** As of 2025, **Singapore** holds the **top position**, offering visa-free access to over **190 destinations**.

◆ **Statement Analysis:**

- **Statement I: Correct** – Singapore is ranked #1.
- **Statement II: Incorrect** – GDP is **not a criterion** for passport ranking.

26) **Correct Answer: (c) I, II and III**

Explanation in Detail:



**Topic in Focus:** The **National Crisis Management Committee (NCMC)** is the apex body for disaster response in India, responsible for **strategic planning, inter-ministerial coordination, and quick decision-making during national emergencies**.

**Key Aspects:**

- **Policy Framework:** NCMC gained **statutory status** under the **Disaster Management (Amendment) Act, 2025**, strengthening its authority.
- **Composition:** Headed by the **Cabinet Secretary**, with members including Secretaries of Home Affairs, Defence, and key ministries.
- **Functions:** Ensures **centralized command**, resource allocation, and real-time monitoring of **national disaster response**.

**Current Relevance:**

- India faces recurring **cyclones, floods, earthquakes**, and **man-made crises** (e.g., industrial accidents), making NCMC vital for **preparedness and response**.
- **Recent Example:** NCMC's role during Cyclone Michaung and the 2023 Manipur conflict response.

**Statement Analysis:**

- **I:** Correct – NCMC is now a **statutory body**.
- **II:** Correct – It is **headed by the Cabinet Secretary**.
- **III:** Correct – NCMC **coordinates disaster response efforts nationally**.

27) **Correct Answer: (a) II and III only**

Explanation in Detail:

**Topic in Focus:** The **International Court of Justice (ICJ)**, the judicial organ of the UN, addresses **disputes between states** and provides **advisory opinions on international law**.

**Key Aspects:**

- **Establishment:** Created in **1945** under the UN Charter; **headquartered in The Hague, Netherlands**.
- **Role in Climate Action:** ICJ recently clarified that **states have legal obligations to curb greenhouse gas emissions**, referencing the **Paris Agreement's 1.5°C limit**.
- **Advisory Opinions:** Can only be sought by **UN organs** (e.g., General Assembly, Security Council).

**Statement Analysis:**

- **I:** Incorrect – It is **based in The Hague**, not elsewhere.
- **II:** Correct – ICJ acknowledges **state obligations to limit emissions**.
- **III:** Correct – Established in **1945 as the UN's judicial body**.
- **IV:** Incorrect – **States cannot directly request advisory opinions**.

28) Correct Answer: (c) I, II and III

Explanation in Detail:

**Topic in Focus:** A public-private partnership between the **World Economic Forum (WEF)** and **Ministry of Skill Development and Entrepreneurship (MSDE)** to bridge India's future skill gaps.

Key Aspects:

- **Sectors Focused:** AI, robotics, clean energy, advanced manufacturing.
- **Mechanism:** Provides **reskilling platforms, cross-industry training, and career transition support.**
- **Global Context:** Part of **WEF's Reskilling Revolution** for **workforce adaptability.**

Statement Analysis:

- I: Correct – It is a **public-private innovation platform.**
- II: Correct – Facilitates **agile career transitions.**
- III: Correct – Aligns **education with industry needs.**

29) Correct Answer: (c) II and III only

Explanation in Detail:

**Topic in Focus:** Power Market Coupling is a **regulatory mechanism** under the **Central Electricity Regulatory Commission (CERC)** to integrate power exchanges for efficient price discovery.

Key Aspects:

- **Day-Ahead Market (DAM):** The first segment for market coupling.
- **Benefits:** Eliminates price divergence, increases **transparency**, and improves **grid efficiency.**
- **Example:** Similar mechanisms are used in **European electricity markets.**

Statement Analysis:

- I: Incorrect – DAM is **next-day trading**, but that does not define coupling.
- II: Correct – **Aggregates orders to find uniform price.**
- III: Correct – Ensures **price convergence across markets.**

30) Correct Answer: (d) I and III only

Explanation in Detail:

**Topic in Focus:** A flagship programme by MSDE to democratize **tech and AI skills** with focus on **vernacular languages** and **rural outreach.**

Key Aspects:

- **Languages:** Covers nine Indian vernacular languages.
- **Inclusion:** Targets rural, non-English, and underprivileged youth.
- **Objective:** Bridge the digital divide and make AI/ML skills accessible.

Statement Analysis:

- I: Correct – Aims for **inclusive tech skill access.**
- II: Incorrect – **Not limited to urban or English-proficient youth.**
- III: Correct – Focuses on **vernacular training modules.**

31) Correct Answer: (a) Both Statement-I and Statement-II are correct and Statement-II explains Statement-I

Explanation in Detail:

◆ **Topic in Focus:** **Arctic Amplification** refers to the phenomenon where the **Arctic warms more than twice as fast as the global average** due to several climate feedback mechanisms.

◆ **Key Aspects:**

- **Reduced Albedo:** Melting ice exposes dark ocean water or land, absorbing more solar radiation and accelerating warming.
- **Lapse Rate Feedback:** Arctic atmosphere loses heat less effectively due to a smaller difference between surface and upper air temperatures.
- **Water Vapour Feedback:** Warmer air holds more water vapor—a greenhouse gas that traps heat.

◆ **Current Relevance:**

- Impacts **global weather patterns**, including **monsoons**.
- Contributes to **sea-level rise** and **permafrost thawing**, releasing methane.

- Affects India's climate resilience and coastal vulnerability.

◆ **Statement Analysis:**

- **Statement I:**  Correct – Arctic is warming faster than global average due to feedback loops.
- **Statement II:**  Correct – Reduced albedo is a major reason; directly explains Statement I.

32) **Correct Answer:** (a) An international agreement under the World Intellectual Property Organization for classification of industrial designs

❖ **Explanation in Detail:**

◆ **Topic in Focus:** The Locarno Agreement (1968) provides an **international classification system** for **industrial designs**, adopted by the **World Intellectual Property Organization (WIPO)**.

◆ **Key Features:**

- Establishes a **common classification code** for registering industrial designs globally.
- **India uses Locarno Classification** in its design registration under the **Designs Act, 2000**.
- Enhances **global harmonization** and **ease of doing business**.

◆ **Importance for India:**

- Aligns India with **global IP standards**.
- Supports innovation, design protection, and "Make in India" initiatives.

◆ **Option Analysis:**

- (a):  Correct.
- (b):  Incorrect – Not a bilateral patent treaty with Switzerland.
- (c):  Incorrect – Not related to trademarks or EU digitalization.
- (d):  Incorrect – Not a regional copyright agreement.



33) **Correct Answer:** (c) Building barrages across Kalasa and Banduri tributaries of the Mhadei to divert water to the Malaprabha River

❖ **Explanation in Detail:**

◆ **Topic in Focus:** The Kalasa-Banduri Project is Karnataka's initiative to **divert water** from the Mhadei River's tributaries to the **Malaprabha basin** to address **drinking water shortages**.

◆ **Background:**

- Rivers involved: **Kalasa and Banduri**, both tributaries of the **Mhadei (Mandovi) River**.
- Opposed by **Goa**, which fears ecological damage and reduced river flow.
- Issue is under **judicial review** and part of **interstate water disputes** in India.



◆ **Key Dimensions:**

- Federal relations
- Ecological sensitivity
- Water governance and **tribunal adjudication**

◆ **Option Analysis:**

- (a):  Not in Maharashtra.
- (b):  Unrelated to Narmada or Saurashtra.
- (c):  Correct.
- (d):  Not an interlinking project of Godavari-Krishna.

34) **Correct Answer:** (a) Its headquarters is located in Geneva (Incorrect)

❖ **Explanation in Detail:**

◆ **Topic in Focus:** UNESCO (United Nations Educational, Scientific and Cultural Organization) is a **specialized UN agency** focused on **global cooperation in education, science, culture, and communication**.

◆ **Key Facts:**

- **Founded:** 1945, post-WWII
- **Headquarters:**  Paris, France

- **Flagship Programs:**
  - World Heritage Sites
  - Man and Biosphere Programme
  - Global Education Monitoring Report

◆ **Statement Analysis:**

- (a):  Incorrect – HQ is **Paris**, not Geneva.
- (b), (c), (d):  All correctly describe UNESCO's role and functions.

35) Correct Answer: (d) **Rajendra Chola I**

❖ **Explanation in Detail:**

◆ **Topic in Focus:** **Chola Gangam Lake**, also known as **Ponneri Lake**, was constructed by **Rajendra Chola I** as a **symbol of his northern conquests**, especially of the **Ganga region**.

◆ **Key Features:**

- Located in **Gangaikonda Cholapuram**, the Chola capital.
- Called the “**liquid pillar of victory**” in inscriptions.
- Served purposes of **urban planning, irrigation, and commemorative architecture**.

◆ **Cultural & Political Significance:**

- Reflects the **Chola emphasis on water management and public works**.
- Symbolizes **imperial legitimacy and expansion**.



◆ **Option Analysis:**

- (a, b, c):  Incorrect – Not related to this lake's construction.
- (d):  Correct – Built by **Rajendra Chola I**.

36) Correct Answer: (a) I only

❖ **Explanation:**

◆ **Topic in Focus:** The **Financial Inclusion Index (FI-Index)** is a composite index developed by the **Reserve Bank of India (RBI)** to assess the **extent of financial inclusion** across India.

◆ **Key Features:**

- **Launched:** 2021
- **Parameters:**
  - **Access** – 35%
  - **Usage** – 45%
  - **Quality** – 20%
- Covers banking, insurance, investments, postal, and pension services.
- **No base year** is assigned to the index; it is **built on a scoring methodology (0-100)**.



◆ **Statement Analysis:**

- **Statement I:**  Correct – These three parameters form the core structure.
- **Statement II:**  Incorrect – It is **deliberately designed without a base year**.

37) Correct Answer: (c) **Both I and II**

❖ **Explanation:**

◆ **Topic in Focus:** **WiFEX** is a **scientific field project** to study **winter fog formation**, especially in **northern India**.

◆ **Implementing Agency:** Conducted by **Indian Institute of Tropical Meteorology (IITM)** under the **Ministry of Earth Sciences (MoES)**.

◆ **Objectives:**

- Improve **fog forecasting** models for public safety.
- Enhance **now-casting** and disaster preparedness.
- Used in civil aviation, road transportation, and agriculture.

◆ **Statement Analysis:**

- **Statement I:**  Correct – Improving forecasting is the key aim.
- **Statement II:**  Correct – It is led by IITM under MoES.

38) Correct Answer: (b) II only

❖ Explanation:

❖ **Topic in Focus:** Article 143(1) of the Indian Constitution allows the President to seek advisory opinion of the Supreme Court on questions of law or fact.

❖ **Key Features:**

- **Non-binding** in nature – the SC's opinion is not mandatory to follow.
- Referred **based on Cabinet advice**.
- Played a role in issues like **Ayodhya (1994)**, **Ram Janmabhoomi site**, and **9th Schedule**.

❖ **Statement Analysis:**

- **Statement I:**  Incorrect – The SC's opinion is **advisory**, not binding.
- **Statement II:**  Correct – Article 143(1) enables such references.

39) Correct Answer: (a) I and II only

❖ Explanation: ❖ **Topic in Focus:**

India's IP reforms aim to **simplify procedures, reduce fees, and digitize the system** to support innovation, especially among **startups and MSMEs**.

❖ **Key Reforms:**

- Adoption of **Locarno Classification** for industrial designs (under WIPO).
- **80% fee reduction** for startups, MSMEs, educational institutions.
- Reduced **trademark forms** from 74 to just **8**.



❖ **Statement Analysis:**

- **Statement I:**  Correct – Locarno Agreement is under WIPO.
- **Statement II:**  Correct – Fee reduction is in place.
- **Statement III:**  Incorrect – The number of forms has been **reduced**, not increased.

40) Correct Answer: (c) II and III only

❖ Explanation:

❖ **Topic in Focus:** Biostimulants are **non-nutrient inputs** that **enhance plant health, nutrient uptake, and stress tolerance**. They do **not act like fertilizers or pesticides**.

❖ **Regulatory Framework:**

- Regulated under the **Fertiliser Control Order (FCO), 1985**.
- Requires **labelling, efficacy tests, and approval**.

❖ **Current Role:**

- Promote **sustainable agriculture**.
- Reduce dependency on chemical fertilizers.

❖ **Statement Analysis:**

- **Statement I:**  Incorrect – They **act on plants**, not animals.
- **Statement II:**  Correct – They improve **nutrient uptake, stress tolerance, and yield quality**.
- **Statement III:**  Correct – Governed under the **FCO 1985**.

41) Correct Answer: (a) I only

❖ Explanation in Detail:

❖ **Topic in Focus:** India's coal sector, though essential for **energy security**, faces scrutiny due to its **environmental impact**. Hence, **sustainability reforms** are crucial.

❖ **Key Sustainability Measures:**

- **Afforestation** of mined-out areas
- **Mine water reuse** for irrigation & drinking
- **Sand extraction** from overburden for construction
- **Blast-free mining** using **Surface Miners, Rippers, and Continuous Miners**

◆ **Statement Analysis:**

- **Statement I:**  **Correct** – Reflects true initiatives like water reuse and ecological restoration.
- **Statement II:**  **Incorrect** – **Blast-free mining uses Surface and Continuous Miners**; it doesn't eliminate them.

42) Correct Answer: (a) Both I and II are correct, and II explains I

❖ **Explanation in Detail:**

◆ **Topic in Focus:** UPI is a **real-time, interoperable digital payments platform** launched by **NPCI**, and a key part of India's **Digital Public Infrastructure (DPI)**.

◆ **Key Highlights:**

- Based on **IMPS infrastructure**
- Integrated with **Aadhaar, Jan Dhan, and mobile**
- Globally operational in **Singapore, France, UAE, Bhutan, Sri Lanka**, and more
- Recognized for **interoperability, scalability, and open API framework**

◆ **Statement Analysis:**

- **Statement I:**  **Correct** – UPI is expanding internationally.
- **Statement II:**  **Correct** – The expansion is due to its **tech-driven, interoperable, scalable nature**, not just language support.
- Statement II logically **explains I**.

43) Correct Answer: (a) I only

❖ **Explanation in Detail:**

◆ **Topic in Focus:** Removal of judges ensures **accountability without eroding independence**, as per **Articles 124(4) & 124(5)** of the Constitution.

◆ **Removal Process:**

- Initiated by **100 Lok Sabha or 50 Rajya Sabha MPs**
- **Judges Enquiry Act, 1968** governs inquiry
- Requires **special majority** in both Houses
- **No usage of the word "impeachment"** in context of judges (unlike for the President)

◆ **Statement Analysis:**

- **Statement I:**  **Correct** – Special majority is required in both Houses.
- **Statement II:**  **Incorrect** – The Constitution avoids using "**impeachment**" for judges.

44) Correct Answer: (b) Article 324

❖ **Explanation in Detail:**

◆ **Topic in Focus:** Article 324 empowers the **Election Commission of India (ECI)** to conduct free, fair, and credible elections.

◆ **Key Functions under Article 324:**

- **Superintendence, direction, and control** of elections
- Covers **Lok Sabha, State Assemblies, President, and Vice President** elections
- Includes **electoral roll preparation and monitoring of poll conduct**

◆ **Article Analysis:**

- **Article 80:** Composition of Rajya Sabha
- **Article 324:**  **Correct** – Powers of ECI
- **Article 326:** Universal adult suffrage
- **Article 338:** National Commission for SCs

45) Correct Answer: (c) Statement-I is correct, but Statement-II is incorrect

❖ **Explanation in Detail:**

◆ **Topic in Focus:** **Biotransformation** involves altering chemical compounds using biological agents. **In vitro biotransformation** (ivBT) uses **isolated enzymes or cells outside** living organisms in a controlled lab environment.

◆ **Key Aspects:**

- **Framework:** Enabled by developments in **biotechnology** and **synthetic biology**.
- **Implementation:** Conducted using isolated biological components (e.g., enzymes or cell organelles).
- **Applications:** Production of artificial food (e.g., synthetic sucrose), pharmaceuticals, and waste-to-resource innovations.
- **Relevance:** Supports **sustainability** and reduces dependence on natural agriculture.

◆ **Statement Analysis:**

- **Statement-I:**  Correct – ivBT is performed using **isolated biological agents** outside living organisms.
- **Statement-II:**  Incorrect – Biotransformation **does not require whole organisms; isolated enzymes or cells suffice**.

46) Correct Answer: (c) Statement-I is correct, but Statement-II is incorrect

❑ **Explanation in Detail:**

◆ **Topic in Focus:** Kamchatka Peninsula and Kuril Archipelago are part of the **Pacific Ring of Fire**, prone to **earthquakes and volcanic activity**.

◆ **Key Aspects:**

- **Kamchatka:** Known as the “**land of fire and ice**” due to **volcanoes and glaciers**.
- **Kuril Archipelago:** Stretches from Kamchatka to **Japan**, not China.
- **Strategic Importance:** Involves **geopolitical disputes** (e.g., Russia-Japan over Kurils).

◆ **Statement Analysis:**

- **Statement-I:**  Correct – Reflects the unique **volcanic-glacial landscape** of Kamchatka.
- **Statement-II:**  Incorrect – Kurils extend towards **Japan**, not eastern China.

47) Correct Answer: (c) I only

❑ **Explanation in Detail:**

◆ **Topic in Focus:** The **China-constructed dam** on the **Yarlung Tsangpo/Brahmaputra** is situated near the river's **U-turn** in Tibet before entering Arunachal Pradesh.

◆ **Key Aspects:**

- **Origin:** Brahmaputra originates from **Chemayungdung Glacier** on the Tibetan Plateau.
- **International Law:** Neither India nor China is a **signatory to the 1997 UN Watercourses Convention**.
- **Implications:** Risks of **water diversion, disaster vulnerability, and transboundary tensions**.

◆ **Statement Analysis:**

- **Statement-I:**  Correct – Accurate details of Brahmaputra's path and geographical context.
- **Statement-II:**  Incorrect – Both countries have **not signed** the UN 1997 Convention.

48) Correct Answer: (c) Both I and II

❑ **Explanation in Detail:**

◆ **Topic in Focus:** Bitra Island is the **smallest inhabited** island in **Lakshadweep**, located in the **Arabian Sea**, near Agatti Island.

◆ **Key Aspects:**

- **Geography:** Total area of only **0.105 sq km** with **minimal population**.
- **Proximity:** Located near **Agatti**, a key island with an airport and administrative significance.
- **Importance:** Relevant for **ecological, developmental, and security concerns**.

◆ **Statement Analysis:**

- **Statement-I:**  Correct – It **is** the smallest inhabited island.
- **Statement-II:**  Correct – Correct geographic proximity to Agatti.

49) Correct Answer: (b) Ministry of Statistics and Programme Implementation

❑ **Explanation in Detail:**

◆ **Topic in Focus:** The NSS is India's primary **socio-economic data collection** mechanism, essential for **policy formulation and national planning**.

◆ **Key Aspects:**

- **Origin:** Initiated in **1950** by **P.C. Mahalanobis**.
- **Administered by:** **MoSPI (Ministry of Statistics and Programme Implementation)**.
- **Scope:** Surveys cover **consumption, employment, education, health**, and more.
- **Importance:** Provides base data for **NITI Aayog, Planning Commission, and Budget allocations**.

◆ **Option Analysis:**

- (a):  Ministry of Home Affairs – Incorrect
- (b):  **Correct** – MoSPI is the correct administrative ministry.
- (c):  Ministry of Science and Technology – Incorrect
- (d):  Ministry of Rural Development – Incorrect

50)  **Correct Answer:** (c) It offers dual-stage protection against *Plasmodium falciparum*

◆ **Topic in Focus:** AdFalcVax is an **indigenous malaria vaccine** developed in India targeting *Plasmodium falciparum* with **dual-stage protection**—a unique feature over current vaccines.

◆ **Key Points:**

- **Dual-stage protection:** Acts on both **pre-erythrocytic (liver)** and **transmission (sexual)** stages of the parasite.
- Developed by Indian research bodies under the **Department of Biotechnology**.
- **Not based** on synthetic nanoparticles or oral delivery.
- Offers **broader, longer immunity with greater efficacy** than existing vaccines like RTS,S.

 **Eliminating Other Options:**

- (a): Targets *only* *P. falciparum*, not all species.
- (b): Not based on synthetic nanoparticles.
- (d): Not administered orally.

 **Conclusion:** AdFalcVax is a major step in **India's public health innovation**, offering **dual-stage, cost-effective** malaria protection.



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