

# Solutions

DATE : 1<sup>st</sup> Dec – 7<sup>th</sup> Dec

1) **Correct Answer:** a) 1 only

**Explanation:**

- **Statement 1:** Correct. The app provides detailed guidance on ornamental fish care and maintenance.
- **Statement 2:** Incorrect. It promotes local businesses but does not focus on export modules.
- **Statement 3:** Incorrect. It was launched under Pradhan Mantri Matsya Sampada Yojana (PMMSY), not the Blue Revolution Scheme.

2) **Correct Answer:** a) Only one

**Explanation:**

- **Statement 1:** Incorrect. The project focuses on sustainable urban development, not creating a financial center.
- **Statement 2:** Correct. It aims to enhance Bhutan-India economic linkages.
- **Statement 3:** Incorrect. The project is funded by Bhutan with India's support, not UNDP.

3) **Correct Answer:** c) 2 and 4 only

**Explanation:**

- **Statement 1:** Incorrect. India imports 30-40% of refined copper due to insufficient domestic production.
- **Statement 2:** Correct. Copper is known for antimicrobial and corrosion-resistant properties.
- **Statement 3:** Incorrect. Surda Mine is in Jharkhand, not Rajasthan.
- **Statement 4:** Correct. Malanjkhand Mine is the largest copper mine in India.

4) **Correct Answer:** c) Advancing sustainable building practices and climate resilience

**Explanation:**

- The GRIHA Summit focuses on promoting green buildings, resource efficiency, and climate-resilient infrastructure.

5) **Correct Answer:** d) None of the above

**Explanation:**

- **Statement 1:** Incorrect. UPI Lite supports partially offline transactions.
- **Statement 2:** Incorrect. UPI Lite was developed by NPCI, not RBI.
- **Statement 3:** Incorrect. Biometric authentication is not a feature of UPI Lite.

6) **Correct Answer:** d) 2 only

**Explanation:**

- **Statement 1:** Incorrect. TERI's scope includes energy efficiency, climate change, and environmental conservation beyond renewable energy.
- **Statement 2:** Correct. TERI collaborates with global organizations on climate initiatives.
- **Statement 3:** Incorrect. TERI is an independent research organization, not under any government ministry.

7) **Correct Answer:** b) 1, 3, and 4 only

**Explanation:**

- **Statement 1:** Correct. Integrates with the PM Gati Shakti platform.
- **Statement 2:** Incorrect. It focuses on logistics optimization, not food grain quality monitoring.
- **Statement 3:** Correct. Uses algorithms for route optimization.
- **Statement 4:** Correct. Supports interstate PDS with geo-located FPSs and warehouses.

8) **Correct Answer:** c) Statement I is correct, but Statement II is incorrect

**Explanation:**

- **Statement I:** Correct. Gait analysis can aid in criminal investigations.
- **Statement II:** Incorrect. Gait analysis evaluates both kinetic (forces) and kinematic (motions) aspects of movement.

9) **Correct Answer:** b) 1, 2, and 4 only

**Explanation:**

- **Statement 1:** Correct. Streamlines subsidy claims under NFSA.
- **Statement 2:** Correct. Enables real-time tracking of subsidy disbursements.
- **Statement 3:** Incorrect. Not explicitly linked to Aadhaar Payment Bridge System.
- **Statement 4:** Correct. Operates under the Ministry of Consumer Affairs.

10) **Correct Answer:** b) Only two

**Explanation:**

- **Statement 1:** Incorrect. Bhutan is also involved in the project.
- **Statement 2:** Correct. The project exemplifies strong energy cooperation between India and Bhutan.
- **Statement 3:** Correct. India provides financial and technical support.

11) **Answer:** a) Cold air interacting with warmer, unfrozen lake waters

**Detailed Explanation:**

- **Formation Process:** Lake-Effect Snow occurs when cold air masses move over warmer, unfrozen lake waters. This creates a temperature differential that transfers heat and moisture from the lake surface to the atmosphere.
- **Mechanism:** As the air gains moisture and rises, it cools rapidly, forming narrow bands of clouds and heavy snowfall, especially on the leeward side of the lake.
- **Regions Affected:** This phenomenon is common near the Great Lakes in the U.S. and other large water bodies in colder regions.

12) **Answer:** d) Special Additional Excise Duty (SAED) and Additional Excise Duty (AED)

**Detailed Explanation:**

- **Introduction:** The Windfall Gains Tax was introduced in July 2022 when global crude oil prices surged due to geopolitical events like the Russia-Ukraine war.
- **Scope:** This tax targets super-normal profits of domestic and private oil companies, including multinationals, during periods of high crude prices.
- **Components:** It is levied as **SAED and AED**, which are part of excise duty frameworks, not under GST. This ensures revenue generation without disrupting GST structures.

13) **Answer:** a) 1 and 3 only

**Detailed Explanation:**

- **Statement 1 (Correct):** The dashboard monitors **PM2.5 levels** across the Indo-Gangetic Plain and Himalayan foothills, regions heavily affected by air pollution.
- **Statement 2 (Incorrect):** While it focuses on ICIMOD member regions, the dashboard does not exclusively track air quality in these countries; it has broader applications.
- **Statement 3 (Correct):** The dashboard uses **advanced forecasting tools** to provide actionable insights for policymakers, addressing air quality and pollution challenges.

14) **Answer:** c) Mauryan

**Detailed Explanation:**

- **Historical Context:** The Kumhrar site in Patna, Bihar, contains remains of an assembly hall believed to have been built during Emperor Ashoka's reign.
- **Architectural Features:**
  - **Polished Sandstone Pillars:** Typical of Mauryan craftsmanship, sourced from Chunar in Uttar Pradesh.
  - **Design:** Parallel rows of 80 pillars supported a wooden roof, showcasing early Mauryan engineering excellence.

15) **Answer:** d) 1 and 3 only

**Detailed Explanation:**

- **Statement 1 (Correct):** A significant temperature difference between lake water and air is essential for transferring moisture and heat, which drives snow formation.
- **Statement 2 (Incorrect):** Physical geography, like hills or valleys, plays a role in intensifying or localizing snowfall.
- **Statement 3 (Correct):** Wind speed and direction determine the specific areas and intensity of snowfall, forming narrow snow bands.

16) **Answer:** c) The Third Buddhist Council under Emperor Ashoka

**Detailed Explanation:**

- **Historical Event:** The Third Buddhist Council, presided over by Ashoka, aimed at purifying the Sangha and resolving disputes among monks.
- **Architectural Link:** The site features the **Eighty Pillared Hall**, likely used as a meeting hall for the council, reflecting Mauryan-era architectural achievements.

17) **Answer:** b) Only two

**Detailed Explanation:**

- **Statement 1 (Correct):** Introduced in July 2022, partly to address domestic fuel shortages by discouraging excessive exports.
- **Statement 2 (Incorrect):** The tax applies to both domestic and private refiners, including multinational corporations, not just domestic companies.
- **Statement 3 (Correct):** Helps generate additional government revenue during high crude price periods, cushioning revenue loss from fuel duty cuts.

18) Answer: b) Only two

Detailed Explanation:

- **Statement 1 (Correct):** NCVET has a grievance redressal mechanism for transparency in vocational training.
- **Statement 2 (Incorrect):** It is not limited to the space sector but oversees training across various sectors.
- **Statement 3 (Correct):** It establishes guidelines for vocational qualification approvals and monitoring, ensuring quality assurance.

19) Answer: b) Only two

Detailed Explanation:

- **Statement 1 (Correct):** A collaborative project between the UNCCD and European Commission Joint Research Centre.
- **Statement 2 (Incorrect):** The atlas is global in scope, not restricted to developing countries.
- **Statement 3 (Correct):** Highlights poor land management as a significant contributor to increased drought risks.

20) Answer: a) SCs and STs

Detailed Explanation:

- **SCs and STs:** Enumerated in every census post-1951 to facilitate social and economic upliftment policies.
- **OBCs:** Data collection for OBCs has been inconsistent, with limited information from initiatives like the SECC of 2011.

21) Correct Option: a) 2 only

Explanation:

- **Statement 1:** Incorrect. Seats are allocated based on **party strength**, not individual MP's seniority.
- **Statement 2:** Correct. Members of smaller parties with fewer than five MPs are seated at the **Speaker's discretion**.
- **Statement 3:** Incorrect. Opposition members are placed **on the left side of the Speaker**, not necessarily in the last rows.

22) Correct Option: d) Prolonged interaction with water for efficient cleaning

• Explanation:

- Nanobubbles remain **suspended in water** for months due to **neutral buoyancy**, allowing extended interaction and efficient gas transfer.
- **Properties:**
  - Size: 70–120 nanometers.
  - Strong **negative surface charge**, preventing coalescence.
  - Neutral buoyancy ensures longer retention in water.

23) Correct Option: b) 2 and 3 only

• Explanation:

- **Statement 1:** Incorrect. The classification eliminates mandatory **BIS certification**, focusing on inspections and audits.
- **Statement 2:** Correct. It reduces **dual regulatory processes** by streamlining certification.
- **Statement 3:** Correct. Dairy products and fortified foods are part of the **high-risk category**.

24) Correct Option: c) 3 only

• Explanation:

- **Statement 1:** Incorrect. A pardon relieves **penalties** but does not erase the criminal record.
- **Statement 2:** Incorrect. Clemency is exercised **independently** by the President without requiring Congressional approval.
- **Statement 3:** Correct. Acceptance of a pardon is considered **admission of guilt**, as per the U.S. Supreme Court ruling in **Burdick vs. U.S. (1915)**.

25) Correct Option: c) Statement-I is correct but Statement-II is incorrect

• Explanation:

- **Statement I:** Correct. Permanent migration outside the Gram Panchayat is a criterion for **job card deletion**.
- **Statement II:** Incorrect. Other criteria include:
  - Duplicate or **fraudulent job cards**.
  - Reclassification of the area.
  - Explicit **disinterest in MNREGA participation**.

26) Correct Option: c) A 250-kilometer-long buffer zone established post-Korean War

• Explanation:

- The DMZ is a heavily fortified **buffer zone** established after the **Korean War (1950–53)**, approximately **250 km long** and located along the **38th parallel**.

27) Correct Option: a) To demonstrate high-precision formation flying in space

• Explanation:

- Proba-3, led by the **European Space Agency (ESA)**, aims to:
  - Demonstrate **formation flying** with millimeter precision.



- Study the **solar corona** by creating artificial solar eclipses.

28) **Correct Option: d) Circular DNA fragments floating freely in the cell nucleus**

- **Explanation:**
  - ecDNA refers to **circular fragments** that detach from chromosomes and float freely in the nucleus.
  - **Key Features:**
    - Contains **oncogenes**.
    - **Dynamic interaction** with other DNA.
    - Violates Mendel's Third Law by inheriting as **clusters**.

29) **Correct Option: b) Only two**

- **Explanation:**
  - **Statement 1:** Incorrect. The mission is led by **ESA**, not ISRO.
  - **Statement 2:** Correct. It aims to create artificial solar eclipses for extended solar observation.
  - **Statement 3:** Correct. It studies the **solar corona** and its influence on space weather.

30) **Correct Option: b) 1 and 3 only**

- **Explanation:**
  - **Statement 1:** Correct. Presidential pardons apply only to **federal crimes**, not state crimes.
  - **Statement 2:** Incorrect. A pardon does not shield recipients from **civil lawsuits**.
  - **Statement 3:** Correct. Pardons do not apply to **impeachment cases**, as explicitly stated in the U.S. Constitution.

31) **Answer: a) A-2, B-1, C-3, D-4**

**Explanation:**

- **Mauryan (A-2):** Hydraulic infrastructure like dams and tanks was established during prolonged droughts, as seen in Brihat Samhita references.
- **Satavahanas (B-1):** Advanced irrigation techniques, including waterwheels and tanks, were introduced in areas like Nashik and Mathura.
- **Cholas (C-3):** Renowned for their massive reservoirs and canals, such as the Grand Anicut (Kallanai), which is still functional.
- **Gupta (D-4):** Promoted rainwater harvesting, showcasing innovative techniques for resource sustainability.

32) **Answer: c) 1 and 3 only**

**Explanation:**

- **Statement 1:** Correct. The RESET Programme focuses on career development for retired athletes through specialized training and skill development.
- **Statement 2:** Incorrect. Eligibility is broader, including state and national-level participants, not just Olympic athletes.
- **Statement 3:** Correct. Courses like Sports Entrepreneurship and Strength & Conditioning Trainer are included in the program.

33) **Answer: d) 2 and 3 only**

**Explanation:**

- **Statement 1:** Incorrect. ILP is issued by state authorities, not the Ministry of External Affairs.
- **Statement 2:** Correct. The ILP aims to safeguard the cultural and demographic identity of the region.
- **Statement 3:** Correct. States under ILP include Arunachal Pradesh, Nagaland, Mizoram, and Manipur.

34) **Answer: b) Enhancing maritime operations and electronic warfare**

**Explanation:**

Rafale-M has advanced radar and electronic warfare systems tailored for maritime operations. Its capabilities include maritime surveillance and anti-ship warfare, essential for naval missions.

35) **Answer: b) Only two**

**Explanation:**

- **Statement 1:** Correct. The reserve is located in Madhya Pradesh.
- **Statement 2:** Correct. It includes the UNESCO World Heritage Bhimbetka rock shelters.
- **Statement 3:** Incorrect. The reserve features dry and moist deciduous forests, not tropical evergreen forests.

36) **Answer: a) Only one**

**Explanation:**

- **Statement 1:** Incorrect. Wular Lake, not Dal Lake, is the largest lake in Jammu and Kashmir.
- **Statement 2:** Correct. Dal Lake is part of a wetland system with floating gardens called "Raad."
- **Statement 3:** Incorrect. Dal Lake partially freezes during winter but does not remain frozen year-round.

37) **Answer:** c) A principle reflecting the inevitability of failure in the presence of errors

**Explanation:**

Murphy's Law states that "anything that can go wrong will go wrong." It highlights the inevitability of errors and serves as a cautionary principle during planning and execution.

38) **Answer:** d) None

**Explanation:**

- **Statement 1:** Incorrect. The DLI Scheme supports semiconductor design, not manufacturing.
- **Statement 2:** Incorrect. Financial incentives are capped at 50% of eligible costs.
- **Statement 3:** Incorrect. The India Chip Centre focuses on design tools and validation, not hardware fabrication.

39) **Answer:** b) Pench Tiger Reserve

**Explanation:**

Pench Tiger Reserve in Madhya Pradesh inspired Rudyard Kipling's "The Jungle Book." Its dense forests and wildlife closely resemble the settings described in the book.

40) **Answer:** c) Only three

**Explanation:**

- **Statement 1:** Correct. Vijayanagara rulers constructed reservoirs by damming rivers.
- **Statement 2:** Correct. The Tungabhadra tank system is a marvel of ancient water engineering.
- **Statement 3:** Correct. Irrigation efforts focused on agriculture and drought prevention.
- **Statement 4:** Incorrect. The karez system was introduced by the Bahamani Sultanate, not Vijayanagara rulers.

41) **Correct Option:** c) 1 and 2 only

○ **Explanation:**

- **Statement 1:** Correct. The LISA system automates linen inspection in Indian Railways' AC coaches.
- **Statement 2:** Correct. It uses AI to detect stains, defects, or damages.
- **Statement 3:** Incorrect. LISA is designed to process large volumes of linens efficiently.

42) **Correct Option:** a) Only one

○ **Explanation:**

- **Statement 1:** Correct. It aims to increase horticulture yield and promote disease-free varieties.
- **Statement 2:** Incorrect. The programme focuses on advanced diagnostic and tissue culture technologies, not GM seeds.
- **Statement 3:** Incorrect. Implemented under the Mission for Integrated Development of Horticulture (MIDH), not Rashtriya Krishi Vikas Yojana.

43) **Correct Option:** a) Euphrates River

○ **Explanation:**

- The Euphrates River is a major water resource in Syria, supporting agriculture and hydroelectric power.

44) **Correct Option:** d) 1 and 3 only

○ **Explanation:**

- **Statement 1:** Correct. Stable institutions ensuring democracy and rule of law are mandatory for membership.
- **Statement 2:** Incorrect. Adoption of the euro is not mandatory for all members (e.g., Denmark, Sweden).
- **Statement 3:** Correct. Prospective members must adopt EU laws and regulations.

45) **Correct Option:** b) Only two

○ **Explanation:**

- **Statement 1:** Correct. Super volcanoes form calderas, large crustal depressions.
- **Statement 2:** Incorrect. They are infrequent but catastrophic.
- **Statement 3:** Correct. Their eruptions can cause global climatic changes.

46) **Correct Option:** b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I

○ **Explanation:**

- **Statement I:** Correct. The project uses Nature-Based Solutions for ecosystem restoration.
- **Statement II:** Correct. GIS tools are used for monitoring and planning but are not an explanation for NbS.

47) **Correct Option:** c) Hindu and Islamic

○ **Explanation:**

- The Buland Darwaza reflects Hindu and Islamic architectural styles, showcasing India's syncretic heritage.

48) **Correct Option:** d) 2 and 3 only

○ **Explanation:**

- **Statement 1:** Incorrect. Green steel is not exclusively produced using green hydrogen; renewable electricity is also used.
- **Statement 2:** Correct. Ferrous scrap, including dismantled ships, reduces carbon emissions.
- **Statement 3:** Correct. Direct electrolysis is similar to the aluminium production process.

49) **Correct Option:** b) Only two

○ **Explanation:**

- **Statement 1:** Correct. India records the highest snakebite incidents globally.
- **Statement 2:** Incorrect. Snakebites are more prevalent in rural areas.
- **Statement 3:** Correct. NAPSE targets a 50% reduction in deaths by 2030.
- **Statement 4:** Incorrect. Anti-venom treatment availability is uneven in rural areas.

50) **Correct Option:** a) Only one

○ **Explanation:**

- **Statement 1:** Incorrect. The convention addresses both ship recycling safety and worker health.
- **Statement 2:** Correct. Compliance is required by shipbreaking yards and shipowners.
- **Statement 3:** Correct. The standards align with the Basel Convention on hazardous waste.

