

Solutions

DATE : 28th April – 5th May

1) Correct Answer: (a) Only one

Explanation:

- **Statement 1 – Correct:**
 - **India is the second-largest gold importer globally.**
 - A rise in gold prices increases the import bill, leading to **widening of the Current Account Deficit (CAD)**.
- **Statement 2 – Incorrect:**
 - Higher gold prices usually **worsen CAD**, which **depreciates the Rupee**, not appreciates it.
 - **Rupee depreciation** happens due to **greater demand for foreign currency to pay import bills**.
- **Statement 3 – Incorrect:**
 - Gold has **negligible weight in India's CPI basket**.
 - **CPI is mainly driven by food, fuel, clothing, housing**, etc., not gold.

2) Correct Answer: (d) 1, 2 and 3

Explanation:

- **Statement 1 – Incorrect:**
 - **NTBs are not ordinary tariffs**; they are **non-tax** restrictions like quotas, licensing, embargoes, etc.
 - Tariffs = taxes; NTBs = **non-tax barriers**.
- **Statement 2 – Incorrect:**
 - WTO has **not eliminated NTBs**.
 - It only **regulates and disciplines** their use under **agreements like SPS and TBT**.
- **Statement 3 – Incorrect:**
 - **Import quotas and licenses** are **classic NTBs** that restrict trade without using tariffs.

3) Correct Answer: (c) Only three

Explanation:

- **A – Correct:** *Indus Waters Treaty* – About **river water sharing** between India and Pakistan.
- **B – Correct:** *SAARC Visa Exemption Scheme* – Allows **visa-free travel** for designated people in SAARC nations.
- **C – Correct:** *Montreux Convention* – Regulates **warships' passage through Turkish Straits**.
- **D – Incorrect:** *Vienna Convention on the Law of Treaties* – Deals with **treaty law**, not **diplomatic immunity**.

4) Correct Answer: (b) 2 and 3 only

Explanation:

- **Statement 1 – Incorrect:**
 - Coral bleaching is caused by **high sea surface temperatures**, not by cooling.
- **Statement 2 – Correct:**
 - Increased **CO₂ causes ocean acidification**, which **weakens corals**, making them prone to bleaching.
- **Statement 3 – Correct:**
 - **Pollutants and sediments** from runoff **stress corals**, reducing their **resilience**.

5) Correct Answer: (b) Only two

Explanation:

- **Statement 1 – Correct:**
 - **Global gold prices** heavily influence domestic prices since India is a major importer.
- **Statement 2 – Correct:**
 - **Rupee depreciation** makes imports costlier, hence **gold becomes expensive** in India.
- **Statement 3 – Incorrect:**
 - Agricultural season doesn't directly raise demand like **festivals or weddings** do.

6) Correct Answer: (d) Neither 1 nor 2

Explanation:

- **Stockholm Convention:** Focuses on **eliminating/restricting POPs** (Persistent Organic Pollutants).
- **Rotterdam Convention:** Implements **Prior Informed Consent (PIC)** for hazardous chemicals.
- Both statements **confused their core objectives**.

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

Explanation:

- **Statement 1 – Correct:**
 - CCS approves **major defence procurements**, including deals exceeding a financial threshold.
- **Statement 2 – Incorrect:**
 - **Prime Minister** chairs the CCS, not the Defence Minister.

8) Correct Answer: (a) 1-B, 2-A, 3-D, 4-C

Explanation:

- **INS Surat** – Indigenous **stealth missile destroyer** (Project 15B).
- **Exercise Aakraman** – **Full-spectrum readiness drill** by IAF.
- **MRSAM** – **Air defence system** against aerial threats.
- **BrahMos** – **Supersonic cruise missile** for precision strikes.

9) Correct Answer: (b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I

Explanation:

- **Statement 1 – Correct:**
 - **Ceasefire Line was converted into LoC**; both sides agreed not to alter it **unilaterally**.
- **Statement 2 – Correct:**
 - **Repatriation of 93,000 POWs** was a **key objective** post the 1971 war.
- **Explanation linkage is incorrect:**
 - The **POW release** was a major concern, but not a **reason for changing the LoC**.

10) Correct Answer: (a) Only one



Explanation:

- **Statement 1 – Incorrect:**
 - Krishna originates in the **Western Ghats** near **Mahabaleshwar** and flows **eastward into the Bay of Bengal**.
- **Statement 2 – Incorrect:**
 - **Nagarjuna Sagar Dam** lies on the **Telangana-Andhra border**, not entirely within Andhra.
- **Statement 3 – Correct:**
 - River is **rain-fed**, highly **seasonal**, and flow fluctuates drastically between **monsoon and dry seasons**.

11) Correct Answer: (c) Only three

Explanation:

- **Statement 1 – Correct:**
 - Nano Sulphur acts as a **broad-spectrum fungicide**, effective against **fungal diseases** like *powdery mildew* and *rust*.
 - The **nanoscale size** enhances penetration and coverage.
- **Statement 2 – Incorrect:**
 - **Nitrogen fixation** is done by **microorganisms** (e.g., *Rhizobium*, *Azotobacter*), **not by sulphur**.
 - Sulphur does **not participate in nitrogen fixation** processes.
- **Statement 3 – Correct:**
 - Sulphur is an essential **micronutrient**, crucial for **protein synthesis**, **chlorophyll production**, and **enzyme activation**.
- **Statement 4 – Correct:**
 - Nano Sulphur can act as a **biopesticide**, interfering with **pest metabolism** and deterring their development.
 - Though not a primary insecticide, it offers **secondary pest resistance**.

12) **Correct Answer: (b) PAN-based unique identification of beneficiaries**

Explanation:

- The **Next-Gen Health Management Information System (HMIS)** under CGHS:
 - Introduces **PAN-based unique ID** to prevent **duplication** of beneficiary records.
 - Enhances **real-time tracking, digital verification, and centralized data access**.
 - Aims to implement **NDHM (National Digital Health Mission)** standards for **efficiency and transparency**.

13) **Correct Answer: (d) 1, 2, and 3**

Explanation:

- **Statement 1 – Correct:**
 - Primary **PM10 emissions** come directly from **vehicle exhausts, brake dust, tyre wear, etc.**
- **Statement 2 – Correct:**
 - Secondary **PM10** forms via **atmospheric chemical reactions** of gases like **SO₂ and NO_x**, producing **sulphates and nitrates**.
- **Statement 3 – Correct:**
 - **Wind-blown dust** from **construction sites, unpaved roads, and open soil** significantly adds to **coarse PM10 particles**.

14) **Correct Answer: (d) The Speaker of the House of Representatives**

Explanation:

- Defined by the **Presidential Succession Act of 1947**:
 - President → Vice President → **Speaker of the House**
 - Then → President Pro Tempore of Senate → Cabinet members (starting with **Secretary of State**)
- **Chief Justice** is **not part** of the succession line.

15) **Correct Answer: (a) 1, 2, and 3 only**

Explanation:

- **Statement 1 – Correct:**
 - Enables **faster service delivery** via digital workflows.
- **Statement 2 – Correct:**
 - Eliminates **duplicate entries** through **PAN-based tracking**.
- **Statement 3 – Correct:**
 - Provides **real-time digital access** to medical records and entitlements.
- **Statement 4 – Incorrect:**
 - **Choice of hospitals** is **not completely autonomous** – it depends on **CGHS norms and referrals**.

16) **Correct Answer: (c) Special visa-free entry to specified categories**

Explanation:

- **SVES**, launched in **1992**, provides:
 - **Visa-free access for specific categories** (officials, MPs, journalists, judges, etc.) across **SAARC nations**.
- Not for **all citizens**.
- Introduced **before 2015**, not to boost tourism, but to **foster people-to-people connectivity**.

17) **Correct Answer: (b) Twin-engine utility helicopter indigenously developed in India**

Explanation:

- **HAL Dhruv:**
 - Developed by **Hindustan Aeronautics Limited (HAL)**
 - **Twin-engine** configuration for **multi-role use**: rescue, transport, surveillance.
- **Not an attack helicopter, not heavy-lift, and not unmanned.**

18) **Correct Answer: (a) 1 and 2 only**

Explanation:

- **Statement 1 – Correct:**
 - India: **Ravi, Beas, Sutlej**;
 - Pakistan: **Indus, Jhelum, Chenab**.
- **Statement 2 – Correct:**
 - India can build **run-of-river hydro projects** with **specific constraints**.
- **Statement 3 – Incorrect:**

- IWT is a **permanent treaty**; no **unilateral withdrawal** permitted.

19) **Correct Answer: (b) Only two**

Explanation:

- **Statement 1 – Correct:**
 - Jhelum River drains the **Kashmir Valley**.
- **Statement 2 – Correct:**
 - Pahalgam is at the **confluence of Lidder River and Sheshnag stream**.
- **Statement 3 – Incorrect:**
 - **Pir Panjal Range lies southwest**, not northeast.
 - **Northeast** is bounded by the **Greater Himalayas**.

20) **Correct Answer: (a) 1, 2 and 3 only**

Explanation:

- **Statement 1 – Correct:**
 - Entirely within **Turkey's territory**.
- **Statement 2 – Correct:**
 - Connects **Black Sea** → **Bosporus** → **Sea of Marmara** → **Dardanelles** → **Aegean Sea**.
- **Statement 3 – Correct:**
 - Lies on **North Anatolian Fault**, causing frequent **earthquakes**.
- **Statement 4 – Incorrect:**
 - Not among the **largest seas** (only ~11,350 km² in size).

21) **Correct Answer: (c) Statement-I is correct but Statement-II is incorrect**

Explanation:

- **Statement I – Correct**
 - ANPR systems use cameras and OCR software to **identify vehicle license plates**, aiding in:
 - **Traffic law enforcement** (e.g., detecting speeding, signal violations)
 - **Tax compliance** (e.g., unpaid tolls or road tax)
- **Statement II – Incorrect**
 - ANPR relies on **centralized/cloud databases** like VAHAN, not **blockchain**.
 - **Blockchain-based registries** are theoretical; not mainstream in current ANPR infrastructure.

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



Explanation:

- **Statement 1 – Incorrect**
 - GNSS signals can be **blocked in tunnels/dense foliage**, but **IMUs** and **roadside beacons** are used for support.
- **Statement 2 – Incorrect**
 - **GNSS tolling** is for **distance-based billing**, not **real-time road condition feedback**.
- **Statement 3 – Correct**
 - GNSS includes **GPS, Galileo, GLONASS, BeiDou**.
 - Modern OBUs support **multi-constellation**, ensuring **interoperability across countries**.

23) **Correct Answer: (c) Only three**

Explanation:

- **Statement 1 – Incorrect**
 - KVIC was established under the **Khadi and Village Industries Act, 1956**, not the Planning Commission.
- **Statement 2 – Correct**
 - KVIC provides **raw materials and skill training** to artisans.
- **Statement 3 – Correct**
 - Undertakes **R&D**, especially in **renewable energy** for rural industries.
- **Statement 4 – Correct**
 - Engages in **market linkage and retail promotion** through **e-commerce, exhibitions, and Khadi outlets**.

24) **Correct Answer: (b) Only two**

Explanation:

- **Statement 1 – Incorrect**
 - HEALD = **Holistic Approach to Liver Disease**; does **not cover liver transplant subsidies**.
- **Statement 2 – Correct**
 - Aims to **integrate liver health in national health policies**.

- **Statement 3 – Correct**
 - Focuses on **community outreach** for **underprivileged groups** via **awareness and screening**.

25) **Correct Answer: (b) Only two**

Explanation:

- **Statement 1 – Correct**
 - Inclusion allows use of the language in **UPSC and other official exams**.
- **Statement 2 – Correct**
 - **Sanskrit** is one of the **22 Eighth Schedule languages**.
- **Statement 3 – Incorrect**
 - Inclusion does **not mandate** use in **primary education**.
- **Statement 4 – Incorrect**
 - **English** is **not** in the Eighth Schedule; it is an **official language under Article 343**.

26) **Correct Answer: (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I**

Explanation:

- **Statement 1 – Correct**
 - Panels generate **electricity at night** by utilizing **heat loss (radiative cooling)**.
- **Statement 2 – Correct**
 - Use **thermoelectric generators** to convert temperature difference into energy.
- Together, they explain **night-time electricity generation via cooling-based thermoelectric conversion**.

27) **Correct Answer: (b) To understand their revival and reproduction capabilities in space and the underlying molecular mechanisms of their resilience**

Explanation:

- **Tardigrades (water bears)** survive extreme conditions by **entering cryptobiosis**.
- Study aims to:
 - Analyze **revival/reproduction in microgravity**
 - Understand **DNA repair, radiation resistance, and space adaptability**
- Valuable for **biotech, astronaut safety, and long-duration space missions**.

28) **Correct Answer: (b) Production of high-strength construction materials like cement**

Explanation:

- **Nano Sulphur** is used in:
 - **Agriculture** (fertilizer/fungicide)
 - **Biomedical** (drug delivery)
 - **Energy** (lithium-sulfur batteries)
- **Not used in cement/construction** – conventional additives are preferred.

29) **Correct Answer: (c) 1, 2, and 3 only**

Explanation:

- **Statement 1 – Correct:** Causes **asthma, bronchitis**.
- **Statement 2 – Correct:** Linked to **heart disease, strokes**.
- **Statement 3 – Correct:** **Impairs lung growth** in children.
- **Statement 4 – Incorrect:** Skin allergies are **not a core impact** of PM10.

30) **Correct Answer: (a) 1 and 2 only**

Explanation:

- **Statement 1 – Correct:** **Anhydrobiosis** = survival in **absence of water**.
- **Statement 2 – Correct:** Have **unique proteins** protecting DNA from **radiation**.
- **Statement 3 – Incorrect:** Not known for **rapid reproduction**.
- **Statement 4 – Incorrect:** They are **microscopic**, not large.

31) **Correct Answer: (a) They allow atomic-scale tailoring of electronic properties**

Explanation:

- **Angstrom-scale chips** use **2D materials** like **graphene** and **TMDs (Transition Metal Dichalcogenides)**.
- These materials are **only a few atoms thick**, allowing **manipulation** at **atomic precision**, which is **not possible with bulk silicon**.
- Enables **ultra-fast switching, low power leakage**, and **energy-efficient operations**.

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- Paves the way for **post-silicon computing**, flexible electronics, and **quantum devices**.

32) **Correct Answer: (d) Statement-I is incorrect but Statement-II is correct**

Explanation:

- **Statement-I – Incorrect:**
 - Inclusion in the **Eighth Schedule** does **not confer official language status**.
 - Official language status is governed by **Articles 343–347**, separately.
- **Statement-II – Correct:**
 - Languages in the Eighth Schedule receive **constitutional support** via **Article 351**, including:
 - **Promotion via Sahitya Akademi**
 - Use in **UPSC exams**
 - State-level inclusion in **education and governance**

33) **Correct Answer: (b) Only two**

Explanation:

- **Statement 1 – Incorrect:**
 - **ANPR does not replace RFID (FASTag)**; it **complements it** for enforcement.
- **Statement 2 – Correct:**
 - Used to detect **vehicles involved in crime, stolen vehicles**, etc.
- **Statement 3 – Correct:**
 - Requires **internet connectivity** for **real-time sync** with VAHAN, toll servers, and databases.

34) **Correct Answer: (b) Only two**

Explanation:

- **Statement 1 – Correct:**
 - **GNSS** allows **linked bank accounts** for **postpaid or prepaid** toll payments.
- **Statement 2 – Correct:**
 - Eliminates **toll booth queues**, reducing **congestion and fuel wastage**.
- **Statement 3 – Incorrect:**
 - **GNSS** relies on **satellite positioning**, not limited to **5G networks**. It can operate with **GSM/4G** as well.

35) **Correct Answer: (c) They offer high efficiency with low-cost fabrication techniques**

Explanation:

- **Perovskite cells** have rapidly reached **high efficiency** (20–25%) using **low-temperature solution processing**.
- Enable **flexible, lightweight, and scalable solar panels**.
- Do **not require silicon wafers**; differ from dye-sensitized cells.
- Challenge: **Stability and lead toxicity**.

36) **Correct Answer: (c) All three**

Explanation:

- **Statement 1 – Correct:**
 - Uses **satellite data** to detect **crop anomalies**, aiding **pest/disease prediction**.
- **Statement 2 – Correct:**
 - Enables **early yield forecasting**, contributing to **food security planning**.
- **Statement 3 – Correct:**
 - **Multi-sensor fusion** (optical + radar) enhances **data accuracy**.

37) **Correct Answer: (b) Yarmouk River**

Explanation:

- **Yarmouk River:**
 - Tributary of the **Jordan River**.
 - Forms part of the **Syria–Jordan border**.
 - Important in **water-sharing and hydro-politics** in West Asia.

38) **Correct Answer: (d) India's first national movement addressing alcohol-associated liver disease and liver health**

Explanation:

- **HEALD = Healthy Liver Education and Alcohol-associated Liver Disease Prevention**
- Launched by **ILBS** under **Ministry of Home Affairs**.

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- Focuses on:
 - Public awareness, early screening
 - Mental health and de-addiction
 - Policy integration
- Targets **underprivileged populations** and promotes **organ donation**.

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

Explanation:

- **Only Statement 3 – Correct:**
 - Aryabhata studied **space radiation, sun, and ionosphere**.
- **Statements 1 and 2 – Incorrect:**
 - It was an **Earth-orbiting satellite, not interplanetary**.
 - Had **no onboard propulsion**; fixed orbit.

40) **Correct Answer: (c) Ministry of Micro, Small and Medium Enterprises**

Explanation:

- **KVIC** is a statutory body under the **KVIC Act, 1956**.
- Functions under **Ministry of MSME**.
- Focuses on:
 - **Rural employment generation**
 - **Self-reliance through Khadi and village industries**
 - **Market promotion and artisan support**

41) **Correct Answer: (c) Statement-I is correct but Statement-II is incorrect**

Explanation:

- **Statement I – Correct:**
 - The **Crew Escape System (CES)** in HLVM-3 is a **critical safety feature** for ISRO's **Gaganyaan mission**.
 - It quickly ejects the **crew module** during a **launch anomaly**, improving **astronaut survival probability** during early stages of ascent.
- **Statement II – Incorrect:**
 - CES operates during **initial flight phases**, not after reaching **Low Earth Orbit (LEO)**.
 - It is **jettisoned after the danger zone**, as its function is **irrelevant in space** beyond atmospheric flight.

42) **Correct Answer: (a) It is used in armor-piercing projectiles and high-strength alloys**

Explanation:

- **Tungsten's key properties:**
 - **High density (~19.3 g/cm³)** → makes it effective for **armor-piercing ammunition**.
 - **High melting point (3,422°C)** → ideal for **aerospace engine parts and missile components**.
- Not radioactive (eliminates option c), not lightweight (eliminates option d), and not used as spacecraft fuel (eliminates option b).

43) **Correct Answer: (d) None**

Explanation:

- **Statement 1 – Incorrect:**
 - Reporting is **legally mandatory** under the **Epidemic Diseases Act** and state-specific laws.
- **Statement 2 – Incorrect:**
 - **Non-communicable diseases (NCDs)** like **cancer** are notifiable in many states, especially for public health planning.
- **Statement 3 – Incorrect:**
 - **Privacy is protected**; reporting is done in a **confidential and regulated manner**.
 - **No automatic suspension** of privacy.

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

Explanation:

- **Statement 1 – Incorrect:**
 - **Super volcanoes** erupt **rarely**, over **thousands to millions of years**.
 - Regular volcanoes erupt **frequently**.
- **Statement 2 – Correct:**
 - Regular volcanoes have **steep, conical shapes** (e.g., Mount Fuji, Vesuvius).
- **Statement 3 – Correct:**
 - **Super volcanoes** cause **global impacts** (e.g., Toba, Yellowstone) like **climate change**.
 - Regular volcanoes have **local/regional effects**.

45) Correct Answer: (d) It serves as a boundary between Europe and Asia

Explanation:

- The **Greater Caucasus Range**:
 - Extends from the **Black Sea** to the **Caspian Sea**, traversing **Georgia, Russia, Azerbaijan**.
 - Considered by many geographers as the **natural boundary between Europe and Asia**.
- **Eliminates other options**:
 - It does **not border the Black Sea directly**, nor house a **desert**, and **does not form the Turkey-Georgia border** (that's the Lesser Caucasus zone).

46) Correct Answer: (a) Only one is incorrect

Explanation:

- **Statement 1 – Incorrect**
 - APEDA **does not fix MSPs** (Minimum Support Prices).
 - MSP is fixed by **CACP** under the **Ministry of Agriculture**.
- **Statement 2 – Correct**
 - APEDA provides **financial assistance** for **export infrastructure**, packaging, quality certification, etc.
- **Statement 3 – Correct**
 - APEDA is responsible for **registration of exporters** dealing in **scheduled products** (like fruits, vegetables, dairy, meat, etc.).

47) Correct Answer: (b) Only two are incorrect

Explanation:

- **Statement 1 – Correct**
 - Recognized as an **Important Bird and Biodiversity Area (IBA)** by **BirdLife International**.
- **Statement 2 – Incorrect**
 - Dominated by **dry deciduous forests**, not **tropical rainforests**.
- **Statement 3 – Incorrect**
 - Lies in the **Malwa Plateau and Chambal basin**, not entirely in the **Vindhyan hill range**.

48) Correct Answer: (c) Siderite

Explanation:

- **Siderite (iron carbonate)** forms in presence of **CO₂-rich atmosphere** and **liquid water**, indicating:
 - Mars once had a **dense, warm atmosphere** capable of supporting **stable surface water**.
- **Olivine & basalt** = **volcanic origin**, not linked to **atmospheric CO₂**.
- **Gypsum** = **evidence of water**, but not of atmospheric density.

49) Correct Answer: (c) It is a European Union mission ensuring humanitarian aid and anti-piracy measures near Somalia

Explanation:

- **Operation Atalanta** (2008):
 - EU Naval Force (EUNAVFOR) operation under CSDP.
 - Protects **WFP ships**, deters **piracy off Somalia**, monitors fishing, and **safeguards maritime trade**.
- Not related to:
 - **Persian Gulf oil trade**
 - **NATO**
 - **Atlantic immigration surveillance**

50) Correct Answer: (d) None

Explanation:

- **Statement 1 – Incorrect**
 - Mount Kailash is **not a UNESCO World Heritage Site** (nominated but not listed).
- **Statement 2 – Incorrect**
 - Composed mostly of **metamorphic and igneous rocks**, not pure limestone.
- **Statement 3 – Incorrect**
 - Lake Mansarovar is a **freshwater lake**, located in **Tibet (China)**, not within Indian territory.