

Solutions

DATE : (17th Nov- 23rd Nov)

1. Answer: (a)

Explanation

Assessment of Statements

• Statement-I: ✓ Correct

- The Serious Fraud Investigation Office (SFIO) is mandated to investigate **serious and complex corporate frauds**.
- It is a **multi-disciplinary agency** comprising experts in **accounting, law, forensic auditing, taxation, and capital markets**.
- Its role is central to ensuring **corporate governance, financial accountability, and investor protection**.

• Statement-II: ✓ Correct

- The **Companies Act, 2013** grants **statutory status** to the SFIO under **Section 211**, empowering it to conduct in-depth investigations and prosecute offences.
- Once a case is assigned to SFIO, **no other agency** can conduct parallel investigations—ensuring institutional independence.

Conclusion: Statement-II clearly explains Statement-I, as statutory recognition empowers SFIO to perform its core mandate effectively.

2. Answer: (d)

Explanation

Assessment of Statements

• Statement-I: ✗ Incorrect

- **Naegleria fowleri** infection (Primary Amoebic Meningoencephalitis – PAM) is **not communicable** between humans.
- There is **no evidence** of transmission via **person-to-person contact, air, droplets, or water ingestion**.

• Statement-II: ✓ Correct

- Infection occurs when **contaminated warm freshwater enters the nose**, usually during:
 - swimming in lakes/ponds
 - diving
 - water sports
 - using contaminated water for nasal cleansing
- The amoeba travels via the **olfactory nerve** to the brain, causing fatal inflammation.

Conclusion

- Statement-I is incorrect, Statement-II is correct.
- Thus, **(d)** is the correct option.

3. Answer: (a)

Explanation

Assessment of Statements

• Statement-I: ✓ Correct

- The **Code on Social Security, 2020** explicitly extends **social security benefits** (PF, insurance, maternity benefits, ESIC) to:
 - **Gig workers**
 - **Platform workers**
 - **Unorganized sector workers**
- This inclusion is a landmark shift acknowledging India's evolving workforce structures.

• Statement-II: ✓ Correct

- The Code merges **nine major social security laws**, creating a **unified framework** that reduces fragmentation and simplifies compliance.
- It enhances the outreach of welfare measures across formal and informal sectors.

Conclusion

- Statement-II logically supports Statement-I.
- Hence, **(a)** is the correct answer.

4. Answer: (b)

Explanation

Assessment of Pairs

1. Central India – Rise in Extreme Rainfall: ✓ Correct

- Multiple climate assessments (IMD, IITM) show a **significant surge in extreme rainfall events**, contributing to floods and crop losses.

2. Indo-Gangetic Plains – Increased Heat Stress: ✓ Correct

- The region faces **intensifying heatwaves**, rising **wet-bulb temperatures**, and declining monsoon rainfall—affecting agriculture and public health.

3. Western Coast – Accelerated Warming: ✗ Incorrect

- The dominant climate signals here are:
 - **more severe tropical cyclones**,
 - **extreme rainfall events**,
 - **extreme sea-level occurrences**,
- not specifically a unique category of **accelerated warming**.

Conclusion: Only two pairs (1 and 2) are correct → **Answer: (b).**

5. Answer: (b)

Explanation

Assessment of Pairs

1. FSSAI limits TFA to 2% - ✓ Correct

- FSSAI mandates a **2% cap on industrial trans fats** to reduce cardiovascular risks and align with WHO recommendations.

2. Eat Right India Campaign - ✓ Correct

- A flagship initiative promoting **safe, healthy, and sustainable diets**, including awareness against UPF consumption.

3. GST on Aerated Beverages - ✗ Incorrect

- The GST rate is **40%**, not **18%**, for **sugar-sweetened aerated beverages**.
- This higher tax aims to discourage consumption of unhealthy drinks.

Conclusion: Only two pairs are correct → **Answer: (b).**

6. Answer: (d)

Explanation

Assessment of Options

• Option (a): ✗ Incorrect

- This describes **oil spill mock drills**, typically conducted under the Ministry of Environment or related agencies.
- **Sagar Kavach**, however, is **not** an environmental drill.

• Option (b): ✗ Incorrect

- This resembles a **bilateral naval exercise**, whereas **Sagar Kavach** is **domestic, multi-agency, and Coast Guard-led**.

• Option (c): ✗ Incorrect

- There is **no tri-service amphibious disaster management** exercise named **Sagar Kavach**.

• Option (d): ✓ Correct

- **Sagar Kavach** is a **biannual coastal security exercise** led by the **Indian Coast Guard**, assessing:
 - **Preparedness against infiltration and maritime threats**
 - **Coordination among central & state agencies**
 - **Strength of multi-layered coastal security**

Conclusion: Option (d) matches the official description of **Sagar Kavach**.

7. Answer: (b)

Explanation

Assessment of Options

- **Option (a): ✗ Incorrect**
 - The framework is **not about subsidies** for deep sea fishing vessels.
- **Option (b): ✓ Correct**
 - The framework establishes a **national digital traceability system**, ensuring:
 - **End-to-end tracking** of seafood
 - **Farm-to-plate** / **catch-to-consumer** transparency
 - Adoption of **blockchain, IoT, QR codes, GPS**
 - Alignment with **global food safety norms**
- **Option (c): ✗ Incorrect**
 - No licensing regime for aquaculture operators is introduced.
- **Option (d): ✗ Incorrect**
 - It does **not** regulate Marine Protected Areas or restrict EEZ fishing.

Conclusion: Option (b) accurately reflects the purpose of the 2025 Traceability Framework.

8. Answer: (b)

Explanation

Assessment of Options

• Option (a): ✗ Incorrect

- Although from UP, the **Meerut Bugle** is **not defined by religious festivals**.

• Option (b): ✓ Correct

- It is strongly connected with:
 - **Indian military tradition**
 - **Regimental ceremonies**
 - **Parades, military academies, official protocols**

- The **GI tag** protects its heritage craftsmanship.

• Option (c): ✗ Incorrect

- It is **not** used in classical dance forms.

• Option (d): ✗ Incorrect

- While a musical instrument, its primary association is **not** folk music.

Conclusion: Option (b) is the correct association.

9. Answer: (a)

Explanation

Assessment of Options

• Option (a): ✓ Correct

- The **Central Industrial Security Force (CISF)** has been officially designated as the **Recognised Security Organisation (RSO)** under the ISPS Code.

- Responsibilities include:

- **Port facility security audits**
- **Risk assessment**
- **Ensuring compliance with ISPS standards**
- **Overseeing port security plans**

• Option (b): ✗ Incorrect

- The Indian Navy is **not** the RSO.
- **Option (c): ✗ Incorrect**
 - The BSF secures **land borders**, not seaports.
- **Option (d): ✗ Incorrect**
 - NDRF focuses on **disaster response**, not maritime facility security.

Conclusion: Option (a) is the correct and official designation.

10. Answer: (a)

Explanation

Assessment of Options

- **Option (a): ✓ Correct**
 - Mount Semeru is located in **East Java**, Indonesia.
 - It is a **stratovolcano**, the **highest peak on Java**, and part of the **Pacific Ring of Fire**.
- **Option (b): ✗ Incorrect**
 - Papua lies in eastern Indonesia and is **not** the site of Semeru.
- **Option (c): ✗ Incorrect**
 - Sulawesi hosts other volcanic formations but **not Semeru**.
- **Option (d): ✗ Incorrect**
 - Northern Sumatra has volcanoes like **Sinabung**, but **Semeru is not located there**.

Conclusion: Option (a) correctly identifies the location of Mount Semeru.

11. Answer: (d)

Explanation

Assessment of Options

- **Option (a): ✗ Incorrect**
 - Articles **200 and 201** do **not** provide any concept of *deemed assent*.
 - No timeline is prescribed for the Governor/President to act on a Bill.
- **Option (b): ✗ Incorrect**
 - Courts **cannot** impose timelines or assume assent after expiration of such timelines.
 - The Supreme Court has recently clarified that **judiciary cannot create "deemed assent"**.
- **Option (c): ✗ Incorrect**
 - There is **no constitutional mechanism** that triggers automatic assent if the Governor delays action.
- **Option (d): ✓ Correct**
 - Correctly states that the Constitution provides:
 - **Four choices** to the Governor under Article 200
 - **No provision** for deemed assent
 - Judicially-imposed timelines or fictional assent would violate **separation of powers** and **federalism**.

Conclusion: Option (d) captures the correct constitutional position on assent to Bills.

12. Answer: (d)

Explanation

Assessment of Options

- **All other options** describe different categories of weapons or platforms not linked to Javelin.
- **Option (d): ✓ Correct**
 - The **FGM-148 Javelin** is:
 - **Man-portable**
 - **Fire-and-forget** (infrared seeker locks target)
 - **Anti-tank guided missile**
 - Capable of **top-attack** against armored vehicles
 - Enhances **infantry anti-armor capability** in diverse terrains.

Conclusion: Option (d) correctly defines the Javelin missile system.

13. Answer: (a)

Explanation

Assessment of Options

- **Option (a): ✓ Correct**
 - Seychelles is an **archipelago of 155 islands**, located **northeast of Madagascar** in the western Indian Ocean.
 - Spread across the **Mascarene Plateau**, comprising both **granite** and **coralline** islands.
- **Option (b): ✗ Incorrect**
 - Seychelles is **not** a **continental island nation** located in the South Atlantic.
- **Option (c): ✗ Incorrect**
 - Seychelles is **not part of East African mainland coast**.
- **Option (d): ✗ Incorrect**
 - Seychelles has **more than 100 islands**, not fewer than 20.

Conclusion: Option (a) accurately describes Seychelles' geographical identity.

14. Answer: (d)

Explanation

Assessment of Options

- **Option (a): ✗ Incorrect**
 - False urgency is only **one** type of dark pattern, not its full definition.
- **Option (b): ✗ Incorrect**
 - Dark patterns are **not limited to recommendation systems**.
- **Option (c): ✗ Incorrect**
 - Hidden costs are just **one manifestation** (basket sneaking), not the general concept.
- **Option (d): ✓ Correct**

- **Dark Patterns** are *deceptive online design tactics* used to:
 - Manipulate user decision-making
 - Induce unintended purchases/subscriptions
 - Extract personal data
- Identified and regulated under **2023 Dark Patterns Guidelines**.

Conclusion: Option (d) is the comprehensive definition.

15. Answer: (b)

Explanation

Assessment of Statements

- **Statement I: ✓ Correct**
 - Japan initiated the **Joint Crediting Mechanism (JCM)** in **2013** to promote low-carbon technologies through bilateral cooperation.
- **Statement II: ✗ Incorrect**
 - JCM covers **multiple sectors**, including:
 - transport,
 - energy efficiency,
 - waste management,
 - industrial processes
 - It is **not limited to renewable energy**.
- **Statement III: ✓ Correct**
 - JCM operates under **Article 6 of the Paris Agreement** as a cooperative approach.
 - It currently spans **30+ partner countries**.

Conclusion: Only I and III are correct → Answer: (b).

16. Answer: (b)

Explanation

Assessment of Statements

- **Statement I: ✓ Correct**
 - Judicial review applies only to **procedural infirmities, mala fide, or constitutional violations**.
 - Courts cannot review the **merits** of a Governor/President's assent decision.
- **Statement II: ✗ Incorrect**
 - The Constitution provides **no concept of "deemed assent"** under Articles 200 or 201.
 - Supreme Court has expressly rejected fictional/automatic assent.
- **Statement III: ✓ Correct**
 - The Court cannot prescribe **timelines or deadlines** for the President/Governor to act.
 - Doing so would violate **separation of powers**.
- **Statement IV: ✗ Incorrect**
 - Article 201 does **not specify any timeline** for presidential action on Bills reserved by the Governor.

Conclusion: Only I and III are correct → Answer: (b).

17. Answer: (c)

Explanation

Assessment of Statements

- **Statement I: ✓ Correct**
 - Global Mutirão promotes global climate action aligned with the **Paris Agreement's 1.5°C goal** through collective mobilization.
- **Statement II: ✓ Correct**
 - It is explicitly inspired by **Brazilian and Indigenous traditions** of communal labor ("mutirão").
- **Statement III: ✓ Correct**
 - Uses **digital hubs/platforms** like the **Maloca** to connect diverse climate actors and scale local-global action.
- **Statement IV: ✗ Incorrect**
 - Participation is *not limited to governments*.
 - It includes **cities, civil society, private sector, youth groups**, etc.

Conclusion: Only I, II, and III are correct → Answer: (c).

18. Answer: (d)

Explanation

Assessment of Statements

- **Statement I: ✓ Correct**
 - India is the **world's largest producer, consumer, and importer** of pulses due to high domestic demand and production constraints.
- **Statement II: ✓ Correct**
 - The **National Mission on Sustainable Agriculture (NMSA)** focuses on **organic, bio-fertilizers, soil health**, and climate-resilient practices.
- **Statement III: ✓ Correct**
 - **PM Krishi Sinchayee Yojana (PMKSY)** aims to enhance **irrigation development**, improve **water-use efficiency**, and achieve "**Har Khet Ko Pani**".

Conclusion: All three statements are correct → Answer: (d).

19. Answer: (b)

Explanation

Assessment of Statements

- **Statement I: ✓ Correct**
 - The Supreme Court accepted a **uniform definition** of an Aravalli hill based on **minimum elevation and proximity**, aiding conservation and governance.
- **Statement II: ✓ Correct**
 - **Guru Shikhar (1,722 m)** on Mount Abu is the **highest peak** in the Aravalli range.

- Statement III: ✓ Correct
 - The Aravalli range forms a **watershed** dividing the **Ganga basin (east)** and **Indus basin (west)**.

Conclusion: All statements are correct → but as per the given key, **Answer: (b) I, II and III.**

20. Answer: (c)

Explanation

Assessment of Options

- Option (a): ✗ Incorrect
 - Transportation mainly emits **CO₂**, not methane.
- Option (b): ✗ Incorrect
 - Forest fires release methane but are **not the largest human-induced source**.
- Option (c): ✓ Correct
 - Agriculture is **the largest anthropogenic methane source** globally (~40%).
 - Major contributors:
 - **Enteric fermentation** in livestock
 - **Rice paddies**
 - **Manure management**
- Option (d): ✗ Incorrect
 - Cement production emits **CO₂**, not methane.

Conclusion: Agriculture is the dominant anthropogenic methane source → **Answer: (c).**

21. Answer: (d)

Explanation

Assessment of Options

- Option (a): ✗ Incorrect
 - Evershed Effect is not about coronal plasma jets.
- Option (b): ✗ Incorrect
 - It has no relation to solar flare cooling.
- Option (c): ✗ Incorrect
 - It is unrelated to UV emissions.
- Option (d): ✓ Correct
 - The **Evershed Effect** describes:
 - **Horizontal, radial outflow of gases**
 - In the **penumbra** of sunspots
 - Observed first at **Kodaikanal Observatory (1909)**

Conclusion: Option (d) correctly defines the phenomenon.

22. Answer: (a)

Explanation

Assessment of Options

- Option (a): ✓ Correct
 - The **CE20 cryogenic engine** uses:
 - **Liquid Hydrogen (LH₂)** – fuel
 - **Liquid Oxygen (LOX)** – oxidizer
 - Both stored at **cryogenic temperatures**.

- Option (b): ✗ Incorrect
 - RP-1 and N₂O₄ not used in CE20.
- Option (c): ✗ Incorrect
 - Solid propellants are not used in cryogenic engines.
- Option (d): ✗ Incorrect
 - CE20 is **not** methane-fueled.

Conclusion: CE20 uses LH₂-LOX → **Answer: (a).**

23. Answer: (a)

Explanation

Assessment of Statements

- Statement I: ✓ Correct
 - Named **“Moon Bear”** due to crescent-shaped chest patch.
- Statement II: ✓ Correct
 - Habitat spans **Himalayas, Northeast India, Myanmar, Bhutan, Nepal, China**.
- Statement III: ✗ Incorrect
 - It is **IUCN: Vulnerable**, not “Least Concern”.
 - Listed under **Schedule I** of the Wildlife Protection Act.
- Statement IV: ✗ Incorrect
 - The species is **mostly nocturnal**, prefers **dense forests**, not alpine grasslands.

Conclusion: Only I and II are correct → **Answer: (a).**

24. Answer: (b)

Explanation

Assessment of Statements

- Statement I: ✓ Correct
 - Goldilocks environment features **steady, sustainable growth**.
- Statement II: ✗ Incorrect
 - High inflation contradicts a Goldilocks scenario; it requires **low, stable inflation**.
- Statement III: ✓ Correct
 - Such an environment promotes **stable policymaking and price stability**.
- Statement IV: ✓ Correct
 - It represents **balanced economic expansion** without overheating or recession.

Conclusion: Only I, III, and IV are correct → **Answer: (b).**

25. Answer: (d)

Explanation

Assessment of Statements

- Statement I: ✓ Correct
 - Article 323-A empowers Parliament to establish **administrative tribunals** for service matters.

- **Statement II: ✓ Correct**

- Part XIV-A (Articles 323-A & 323-B) was introduced through the **42nd Constitutional Amendment, 1976**.

- **Statement III: ✗ Incorrect**

- The claim that tribunals must be established *only* by Parliament is wrong.
- Under **Article 323-B, both Parliament and State Legislatures** may create tribunals for subjects like taxation, land reforms, industrial disputes, etc.

Conclusion: Only I and II are correct → **Answer: (d)**.

26. Answer: (a)

Explanation

Assessment of Statements

- **Statement I: ✗ Incorrect**

- CRISPR systems use **two components**:
 - **guide RNA (gRNA)**: identifies target sequence
 - **Cas9 protein**: performs the cut
- It is **not** a single-molecule mechanism.

- **Statement II: ✓ Correct**

- Cas9 acts as **molecular scissors**, generating double-strand breaks in DNA.

- **Statement III: ✓ Correct**

- **enFnCas9**, developed by **CSIR-IGIB**, is a **high-fidelity Cas9 variant** derived from *Francisella novicida*.

Conclusion: Only II and III are correct → **Answer: (a)**.

27. Answer: (a)

Explanation

Assessment of Statements

- **Statement I: ✓ Correct**

- Sickle-cell disease (SCD) is a **genetic disorder** affecting **haemoglobin (HBB gene mutation)**.

- **Statement II: ✓ Correct**

- Prevalence is significantly higher among **tribal populations** in central and eastern India.

- **Statement III: ✓ Correct**

- **BIRSA 101** is a **gene therapy candidate** for SCD developed by **CSIR-IGIB**, named after **Birsa Munda**.

Conclusion: All three statements are correct → **Answer: (a)**.

28. Answer: (c)

Explanation

Assessment of Statements

- **Statement I: ✓ Correct**

- Methane has an average atmospheric lifetime of **~12 years**, making it a short-lived but powerful climate pollutant.

- **Statement II: ✗ Incorrect**

- Methane does **not** have *lower* warming potential than CO₂.
- Over a **20-year period**, methane's **GWP ≈ 86 times CO₂**.

Conclusion: Statement-I correct; Statement-II incorrect
→ **Answer: (c)**.

29. Answer: (b)

Explanation

Assessment of Statements

- **Statement I: ✓ Correct**

- **TnpB proteins** (~400–500 amino acids) are much smaller than **Cas9** (~1,300 amino acids), aiding genome editing.

- **Statement II: ✓ Correct**

- Their compact size enables **more efficient delivery** into cells, especially using **viral vectors**.

Relationship Between Statements

- Statement-II provides an **advantage** but does **not logically explain** the factual claim in Statement-I.

Conclusion: Both statements are correct, but II does not explain I → **Answer: (b)**.

30. Answer: (c)

Explanation

Assessment of Statements

- **Statement I: ✓ Correct**

- **Antimicrobial Resistance (AMR)** is a major **global health threat**, contributing to nearly **5 million deaths annually**.
- It leads to **ineffective treatments**, prolonged illness, rising healthcare costs, and systemic burden on public health.

- **Statement II: ✗ Incorrect**

- AMR occurs **because** microorganisms such as **bacteria, viruses, fungi, and parasites** **evolve resistance** to antimicrobials.
- The statement contradicts the fundamental cause of AMR.

Conclusion: Statement-I correct; Statement-II incorrect
→ **Answer: (c)**.

31. Answer: (d)

Explanation

Assessment of Options

- Codex Alimentarius Commission (CAC) was established by FAO & WHO (1963).
- Its mandate is to:
 - ✓ Protect consumer health
 - ✓ Ensure fair practices in the food trade
- India's re-election to the Codex Executive Committee underscores its role in global food standards development.

Conclusion: Correct objective → **Answer: (d).**

32. Answer: (a)

Explanation

Assessment of Options

- NAP-AMR 2.0 (2025-29) aligns with WHO's **Global Action Plan on AMR** and addresses gaps from NAP-AMR (2017-21).
- AMR is defined as:
 - ✓ A phenomenon where microorganisms evolve mechanisms to survive drugs designed to kill them.

Conclusion: Option (a) gives the correct definition of AMR → **Answer: (a).**

33. Answer: (a)

Explanation

Assessment of Options

- Climate Change Performance Index (CCPI) is jointly published by:
 - ✓ Germanwatch
 - ✓ NewClimate Institute
 - ✓ Climate Action Network (CAN)
- No country ranked in the top 3 due to insufficient climate performance.
- India dropped to **23rd** (medium performer).

Conclusion: CCPI is published by Germanwatch and partners → **Answer: (a).**

34. Answer: (b)

Explanation

Assessment of Statements

- Statement I: ✗ **Incorrect**
 - The US was the primary broker of the Gaza Peace Plan, supported by Egypt and Qatar.
 - Thus, Egypt alone was not the initiator.
- Statement II: ✓ **Correct**
 - A key provision is the **mutual release of hostages and detainees**, forming the core humanitarian component of the plan.

Conclusion: Only Statement II is correct → **Answer: (b).**

35. Answer: (c)

Explanation

Assessment of Statements

- Statement I: ✓ **Correct**
 - The Climate Change Performance Index (CCPI) is jointly published by:
 - Germanwatch
 - NewClimate Institute
 - Climate Action Network (CAN)
- Statement II: ✓ **Correct**
 - In the latest CCPI report:
 - **No country is ranked in the top 3.**
 - **Denmark** is placed **4th**, followed by the **UK and Morocco**.

Conclusion: Both statements are correct → **Answer: (c).**

36. Answer: (d)

Explanation

Assessment of Statements

- Statement I: ✓ **Correct**
 - A **base effect** occurs when an unusually low/high base-year value distorts growth or inflation rates.
- Statement II: ✓ **Correct**
 - Widely applied in **inflation analysis**, GDP growth interpretation, and other macroeconomic indicators.
- Statement III: ✓ **Correct**
 - This statement correctly defines the **base effect** in macroeconomics.
- Statement IV: ✗ **Incorrect**
 - The base effect is **not limited to agriculture**—it operates across **all economic sectors**.

Conclusion: Only I, II, and III are correct → **Answer: (d).**

37. Answer: (a)

Explanation

Assessment of Statements

- Statement I: ✓ **Correct**
 - The portal aims to provide **transparent, accessible trade intelligence** for exporters and policymakers.
- Statement II: ✗ **Incorrect**
 - It does **not replace customs clearance systems** (e.g., ICEGATE, SWIFT).
 - Its scope is **trade analytics**, not operational customs clearance.
- Statement III: ✓ **Correct**
 - It unifies previously fragmented databases and gives **market insights** to small and remote businesses.

Conclusion: Only I and III are correct → **Answer: (a).**

38. Answer: (c)

Explanation

Assessment of Statements

- **Statement I:** ✓ Correct
 - Guru Tegh Bahadur advocated **universal brotherhood, religious liberty, and social reform.**
- **Statement II:** ✓ Correct
 - He founded **Chak Nanki**, which later became **Anandpur Sahib**.
- **Statement III:** ✗ Incorrect
 - He was the **youngest son of Guru Hargobind Ji**, not the eldest.
 - He was the **ninth Sikh Guru**, not the seventh.

Conclusion: Only I and II are correct → **Answer: (c).**

39. Answer: (c)

Explanation

Assessment of Statements

- **Statement I:** ✓ Correct
 - PMFBY excludes risks from **war, nuclear events, malicious damage, sabotage, etc.**
- **Statement II:** ✓ Correct
 - Premiums under PMFBY:
 - **2%** – Kharif
 - **1.5%** – Rabi
 - **5%** – Commercial & horticultural crops
 - Thus, commercial/horticultural premiums are **higher**.
- **Statement III:** ✓ Correct
 - PMFBY **covers prevented sowing/planting**, including cases due to **deficit rainfall**.

Conclusion: All statements are correct → **Answer: (c).**

40. Answer: (d)

Explanation

Assessment of Option

- **Article 280:** ✓ Correct
 - Article **280(1)** mandates that the **President constitute a Finance Commission** every five years or earlier.
 - It outlines its functions:
 - Distribution of **tax revenues** between Union and States
 - Principles for **grants-in-aid**
 - Measures to strengthen **local government finances**

Conclusion: Correct constitutional basis → **Answer: (d).**

41. Answer: (c)

Explanation

Assessment of Option

- **Targeted use of biological agents based on individual genetic profiles:** ✓ Correct
 - Precision biotherapeutics tailors:
 - **Gene therapies**
 - **Cell-based treatments**
 - **mRNA platforms**
 - **Monoclonal antibodies**
 - Designed according to an individual's **genetic, lifestyle, and environmental profile**.

Conclusion: Correct description of precision biotherapeutics → **Answer: (c).**

42. Answer: (a)

Explanation

Assessment of Statements

- **Statement I:** ✓ Correct
 - AfCFTA expands a **single African market**, enhancing opportunities for Indian firms and investors.
- **Statement II:** ✓ Correct
 - India is Africa's **third-largest trading partner**, crossing **\$100 billion** in trade.
- **Statement III:** ✗ Incorrect
 - India's Africa engagement includes:
 - **Digital partnerships**
 - **IT and capacity-building programs**
 - **Scholarships and training**
 - It is **not limited to trade**.

Conclusion: Only I and II are correct → **Answer: (a).**

43. Answer: (b)

Explanation

Assessment of Statements

- **Statement I:** ✓ Correct
 - **Digital Twin models** simulate real-time river conditions, enabling predictive planning and flood management.
- **Statement II:** ✗ Incorrect
 - RBM involves **multiple stakeholders**:
 - **Local governments**
 - **Civil society**
 - **Private sector**
 - **Community groups**
 - Not limited to central authorities.
- **Statement III:** ✓ Correct
 - RBM integrates:
 - **Geospatial databases**
 - **Multi-stakeholder coordination**

- Basin-wide policies for sustainable hydrology.

Conclusion: Only I and III are correct → **Answer: (b).**

44. Answer: (a)

Explanation

Assessment of Statements

- **Statement I:** ✓ Correct
 - Gandhi compared the destruction of India's indigenous education system to "a **beautiful tree being cut down**," condemning the colonial model.
- **Statement II:** ✗ Incorrect
 - Macaulay's Minute (1835) promoted **English-medium education** and dismissed Indian classical learning, not the other way around.

Conclusion: Only Statement I is correct → **Answer: (a).**

45. Answer: (a)

Explanation

Assessment of Statements

- **Statement I:** ✓ Correct
 - Lagrange points are positions in space where **gravitational forces and centrifugal force** balance, allowing spacecraft to maintain stable positions with minimal fuel.
- **Statement II:** ✓ Correct
 - Reduced fuel consumption is a **direct consequence** of this equilibrium, enabling long-term station-keeping with minimal energy.

Conclusion: Both statements are correct, and Statement-II explains Statement-I → **Answer: (a).**

46. Answer: (b)

Explanation

Assessment of Options

- **Milky white colour, natural beauty, durability:** ✓ Correct
 - Ambaji Marble is known for its:
 - **Milky white appearance**
 - **High durability**
 - **Smooth texture & aesthetic appeal**
 - These unique characteristics justify its **GI tag status**.

Conclusion: Correct attributes of Ambaji Marble → **Answer: (b).**

47. Answer: (b)

Explanation

Assessment of Options

- **A channel connecting the Atlantic Ocean and the Caribbean Sea:** ✓ Correct

- The **Anegada Passage** is a major maritime route in the **West Indies**, connecting:
 - **Atlantic Ocean → Caribbean Sea**
- It lies between the **British Virgin Islands** and the **Leeward Islands**.

Conclusion: Correct geographical description → **Answer: (b).**

48. Answer: (b)

Explanation

Assessment of Options

- **Uzbekistan:** ✗ Incorrect
 - Uzbekistan is **NOT** a member of the EAEU.

Correct Membership (✓)

- Armenia
- Belarus
- Kazakhstan
- Kyrgyzstan
- Russia

Conclusion: Since the question asks which *is not* a member, the correct answer is **(b) Uzbekistan.**

49. Answer: (a)

Explanation

Assessment of Options

- **Honouring mystical celestial fairies (Saunis) through rituals and dance:** ✓ Correct
 - The **Raulane Festival** in **Kinnaur, Himachal Pradesh** is a 5,000-year-old tradition dedicated to:
 - **Celestial fairies called Saunis**
 - Ritualistic performances
 - Processions to the **Nagin Narayan Temple**
 - Slow devotional dance symbolizing divine union

Conclusion: Option (a) correctly captures the essence of the festival → **Answer: (a).**

50. Answer: (b)

Explanation

Assessment of the Option

- ✓ Correct –
 - The **ESCAPEADE mission (Escape and Plasma Acceleration and Dynamics Explorers)** is explicitly designed to study:
 - **Solar wind interaction**
 - **Mars' induced magnetosphere**
 - **Mechanisms of atmospheric escape**

- These processes are central to understanding Mars' **atmospheric evolution** and the planet's past habitability.
- The mission uses a "**loiter orbit**" near Earth's **Lagrange Point 2 (L2)** for fuel optimization before its Mars transfer trajectory.

Conclusion: The mission's core purpose is studying the **interaction between solar wind and Mars' magnetic environment** → **Answer: (b).**



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