

# Solutions

DATE : (22<sup>nd</sup> Dec- 28<sup>th</sup> Dec )

## 1) Answer (b) Both Statement-I and Statement-II are correct, but Statement-II does not explain Statement-I

### Explanation

**Statement-I: Aravalli range restricts the eastward expansion of the Thar Desert ✓**

- The **Aravalli Range** acts as a **geomorphological and ecological barrier**, reducing **desertification** and **dust storm intensity** toward the **fertile plains of eastern Rajasthan, Haryana, and western UP**.
- It supports **vegetation cover, soil moisture retention, and groundwater recharge**, thereby protecting adjacent agro-ecological zones.

**Statement-II: Aravalli range influences monsoon movement and rainfall distribution ✓**

- The Aravallis **interact with monsoon winds**, affecting **rainfall distribution** in regions further east and north (e.g., **Shimla, Nainital**).
- This reflects a **climatic modulation role**, but it **does not directly explain** the desert-barrier function stated in Statement-I.

## 2) Answer (b) Both Statement-I and Statement-II are correct, but Statement-II does not explain Statement-I

### Explanation

**Statement-I: Kuttanad is the only region in India with below-sea-level rice cultivation ✓**

- **Kuttanad (Kerala)** practices **below mean sea level paddy cultivation**, using **bunds, pumps, and controlled drainage**—a unique adaptation to wetland conditions.

**Statement-II: FAO recognized Kuttanad as a GIAHS site ✓**

- The **FAO's GIAHS** recognition acknowledges **heritage value, sustainability, and traditional knowledge systems** of Kuttanad.
- While both statements are correct, **recognition does not explain the below-sea-level cultivation practice**.

## 3) Answer (c) Both I and II

### Explanation

**Statement (I): Habitat loss and infrastructure pose the main threat to GIB ✓**

- The **Great Indian Bustard (GIB)** faces severe threats from **habitat fragmentation** and **overhead power lines**, leading to high mortality.

**Statement (II): GIB has the highest legal protection ✓**

- Listed under **Schedule I of the Wildlife (Protection) Act, 1972** and **Appendix I of CITES**, the GIB enjoys **maximum legal protection** nationally and internationally.
- Recent **Supreme Court interventions** underscore urgent conservation measures in renewable energy corridors.

## 4) Answer (c) Both I and II

### Explanation

**Statement (I): Lothal features the oldest known man-made dockyard ✓**

- **Lothal**, an **Indus Valley Civilization** site, is renowned for its **ancient dockyard**, evidencing early maritime trade.

**Statement (II): NMHC is part of the Sagarmala Programme and located at Lothal ✓**

- The **National Maritime Heritage Complex (NMHC)** is a **Sagarmala flagship project** at **Lothal, Gujarat**, aimed at showcasing India's **maritime heritage** through museums and cultural infrastructure.

## 5) Answer (b) II only

### Explanation

**Statement (I): GeM is for private procurement ✗**

- **Government e-Marketplace (GeM)** is **exclusively for government entities and PSUs**, not for private procurement.

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**Statement (II): GeM is a Section 8 company under the Ministry of Commerce and Industry ✓**

- GeM operates as a **Section 8 (not-for-profit) company** under the **Ministry of Commerce and Industry**, enhancing **transparency, efficiency, and accountability** in public procurement.

**6) Answer (a) I and IV only**

**Explanation**

**Statement (I): Kilonova results from merger of neutron stars formed post-supernova ✓**

- In a **superkilonova**, a **massive star first undergoes a supernova**, forming **neutron stars**, which subsequently **merge** to produce a **kilonova**.
- This merger drives **r-process nucleosynthesis**, forming **heavy elements beyond iron**.

**Statement (II): Every supernova is followed by a kilonova ✗**

- **Superkilonovae are extremely rare**; most supernovae **do not** lead to neutron star mergers.

**Statement (III): Supernova marks the end of a massive star (as an answer component) ✗**

- While factually true, this statement **does not directly define or characterize a superkilonova**, hence incorrect in this context.

**Statement (IV): Superkilonova involves a supernova followed by a kilonova from the same source ✓**

- This captures the **defining sequence** of the phenomenon: **supernova → kilonova** linked to the **same progenitor system**.

**7) Answer (d) II, III and IV only**

**Explanation**

**Statement (I): Southern Ocean lies north of 60°S ✗**

- The **Southern (Antarctic) Ocean** is conventionally defined as **south of 60°S latitude**, encircling Antarctica.

**Statement (II): Also referred to as the Antarctic Ocean ✓**

- The Southern Ocean is **also known as the Antarctic Ocean**.

**Statement (III): Includes Ross Sea and Weddell Sea ✓**

- Major marginal seas include the **Ross Sea** and **Weddell Sea**, among others.

**Statement (IV): One of the five major ocean basins ✓**

- Recognized as one of the **five major oceans** of the world.

**8) Answer (d) I, II and III only**

**Explanation**

**Statement (I): Paired attacker device gains full account access ✓**

- Once approved, the attacker's device becomes a **hidden trusted linked device** with **full access**.

**Statement (II): No password or SIM access required ✓**

- **GhostPairing** exploits **WhatsApp's device-linking feature**, bypassing password/SIM requirements.

**Statement (III): User is tricked into approving a fake pairing code ✓**

- The scam relies on **social engineering**, deceiving users into **approving a fraudulent pairing request**.

**Statement (IV): All cyber scams require access to phone/SIM ✗**

- **Not true**; GhostPairing specifically **does not** require such access.

**9) Answer (d) I, II and IV only**

**Explanation**

**Statement (I): Aluminium becomes more toxic as soil pH falls below 5 ✓**

- **Acidic soils** increase **aluminium solubility**, intensifying toxicity.

**Statement (II): Aluminium toxicity disrupts nutrient uptake ✓**

- Excess aluminium **inhibits absorption** of **calcium, potassium, phosphorus, magnesium**, etc.

**Statement (III): Aluminium improves nutrient uptake ✗**

- This is **incorrect**; aluminium **disrupts** nutrient uptake and plant physiology.

**Statement (IV): Aluminium damages plant roots ✓**

- Toxic aluminium **impairs root growth**, reducing water and nutrient absorption.

**10) Answer (c) III only**

**Explanation**

**Statement (I): India is 100% import-dependent for lithium, cobalt, nickel ✗**

- India is **highly import-dependent**, but **not 100%**; limited domestic and overseas-linked sources exist.

**Statement (II): Only 15% of India explored in detail ✗**

- While **exploration coverage is limited**, the figure and framing are **not accurate** for this assertion.

**Statement (III): India is largely self-sufficient in bauxite, chromite, limestone ✓**

- India has **adequate domestic reserves and production capacity** in several **bulk and industrial minerals**, supporting self-sufficiency.

**11) Answer (c) Electoral Trusts must distribute 95% of total contributions received to registered political parties**

**Explanation**

**Option (a): Electoral Trusts must distribute at least 80% of contributions ✗**

- The **Electoral Trusts Scheme, 2013** mandates a **much higher threshold** than 80%.

**Option (b): Electoral Trusts cannot receive contributions from companies ✗**

- Electoral Trusts are **explicitly permitted** to receive donations from **individuals and corporate entities**, subject to disclosure norms.

**Option (c): Electoral Trusts must distribute 95% of total contributions ✓**

- The Scheme mandates that **at least 95% of total annual receipts** must be **distributed to registered political parties** within the same financial year.
- This provision ensures **minimal fund retention**, enhancing **transparency and accountability** in political funding.

**Option (d): Electoral Trusts can retain all contributions ✗**

- Retention beyond 5% is **not permitted** under the Scheme.

**12) Answer (a) A longevity-linked enzyme that regulates tryptophan metabolism**

**Explanation**

**Option (a): Longevity-linked enzyme regulating tryptophan metabolism ✓**

- **SIRT6 (Sirtuin-6)** is a **mammalian enzyme** involved in **DNA repair, metabolism, and neuroprotection**.
- It regulates **tryptophan metabolism**, balancing pathways for **energy production** and **neurotransmitter synthesis (serotonin, melatonin)**, thereby supporting **brain health and healthy aging**.

**Option (b): Industrial catalyst for biofuels ✗**

- SIRT6 has **no industrial or biofuel-related role**.

**Option (c): Enzyme involved in nitrogen fixation ✗**

- Nitrogen fixation enzymes (e.g., nitrogenase) are found in **bacteria**, not mammals.

**Option (d): Plant hormone regulating growth ✗**

- SIRT6 is **not a hormone** and **not plant-related**.

### 13) Answer (c) New Zealand is India's second largest trading partner in Oceania

#### Explanation

#### Option (a): FTA excludes services and skilled mobility ✗

- The India–New Zealand FTA includes **services, investment, and skilled professional mobility**.

#### Option (b): FTA is limited to digital trade ✗

- The agreement is **comprehensive**, covering **goods, services, agriculture, health cooperation**, and more.

#### Option (c): New Zealand is India's second largest trading partner in Oceania ✓

- New Zealand holds strategic importance as **India's second largest trading partner in the Oceania region**, underscoring the FTA's relevance for **trade diversification**.

#### Option (d): Agricultural products are excluded from zero-duty access ✗

- The FTA provides **zero-duty access**, including for **agricultural products**, subject to agreed schedules.

### 14) Answer (d) Identify mobile numbers potentially involved in financial fraud

#### Explanation

#### Option (a): Certification tool for fintech platforms ✗

- FRI does **not certify platforms** or entities.

#### Option (b): Creditworthiness assessment of financial institutions ✗

- FRI does **not assess credit risk or solvency**.

#### Option (c): Monitoring cross-border tax evasion ✗

- Tax monitoring falls under **revenue authorities**, not FRI.

#### Option (d): Identifying mobile numbers linked to financial fraud ✓

- The **Financial Fraud Risk Indicator (FRI)** flags **mobile numbers** based on **risk levels (medium/high/very high)** using inputs from **banks, telecom operators, law enforcement, and citizens**.
- It enables **real-time preventive action** against **phishing, scam calls, and digital fraud**.

### 15) Answer (d) II and III only

#### Explanation

#### Statement (I): Personality rights include only the right to privacy ✗

- **Personality rights include both:**
  - **Right to Privacy**
  - **Right to Publicity**
- Hence, the statement is **incorrect**.

#### Statement (II): Article 21 provides for the right to privacy ✓

- The **Right to Privacy** is a **fundamental right under Article 21** of the Constitution.

#### Statement (III): K.S. Puttaswamy judgment affirmed the right to privacy ✓

- The **Supreme Court in K.S. Puttaswamy v. Union of India (2017)** unequivocally recognized **privacy as a fundamental right**, forming the constitutional basis of personality rights in India.

### 16) Answer (b) I, III and IV only

#### Explanation

#### Statement (I): Central Government approval is mandatory for diversion of forest land ✓

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- Under the **Forest (Conservation) Act, 1980**, prior approval of the **Central Government** is compulsory for diversion of forest land for **non-forest purposes**.
- This provision was upheld in landmark judgments such as **T.N. Godavarman Thirumulpad v. Union of India**, reinforcing strict central oversight.

**Statement (II): Advisory Committee is constituted by the State Government ✗**

- The **Advisory Committee** under the Act is constituted by the **Central Government**, not the State Government.
- It advises the Centre on proposals for forest land diversion.

**Statement (III): The Act applies to all categories of government-recognised forest land ✓**

- The Act covers **Reserved Forests, Protected Forests, and all government-recorded forest lands**, irrespective of ownership.

**Statement (IV): Conservation and regulated use of forest land are the objectives ✓**

- The core objective of the Act is **forest conservation and regulation of land-use change**, not revenue maximisation.

**17) Answer (b) I and III only**

**Explanation**

**Statement (I): Centres of Excellence in central universities for PESA capacity-building ✓**

- The government has initiated **Centres of Excellence** in **central universities** to strengthen **PESA implementation**, research, and training.

**Statement (II): Training manuals translated only into Hindi and English ✗**

- PESA training material has been translated into **multiple regional and tribal languages**, beyond Hindi and English, to ensure **inclusive tribal outreach**.

**Statement (III): PESA-GPDP Portal aids planning and monitoring in Scheduled Areas ✓**

- The **PESA-GPDP Portal** integrates **participatory planning, monitoring, and accountability** for development works in **Fifth Schedule Areas**.

**18) Answer (c) Only three**

**Explanation**

**Pair (1): Data Phishing – ransomware locking files for ransom ✗**

- **Data phishing** involves tricking users into revealing **passwords, OTPs, or credentials**, not ransomware-based file locking (which is **ransomware**).

**Pair (2): Pig Butchering – fake relationships/jobs leading to financial fraud ✓**

- Victims are emotionally or professionally groomed and later induced into **fraudulent investments or transfers**.

**Pair (3): Instant Loan Apps – data misuse and harassment ✓**

- Fraudsters misuse **contacts, photos, and personal data** to **blackmail borrowers**.

**Pair (4): Phantom Hacking – impersonation and fear-based fund transfer ✓**

- Scammers impersonate officials, claim devices are hacked, and coerce victims into **transferring money**.

**19) Answer (a) Both Statement-I and Statement-II are correct and Statement-II explains Statement-I**

**Explanation**

**Statement-I: PESA empowers Gram Sabhas with legal supremacy in Fifth Schedule Areas ✓**

- **PESA Act, 1996** grants **Gram Sabhas overriding authority** over land, resources, and cultural matters in **Scheduled Areas**.

**Statement-II: PESA institutionalises traditional tribal rights via mandatory consent ✓**

- Mandatory **Gram Sabha consent** for land acquisition, mining, and MFP management **explains how and why** Gram Sabhas gain supremacy.
- Thus, Statement-II **logically explains** Statement-I.

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

**Explanation**

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**Statement-I: FRI provides early fraud warnings to banks and financial institutions ✓**

- The **Financial Fraud Risk Indicator (FRI)** flags **mobile numbers** involved in suspected fraud, enabling **preventive action** by banks and FIs.

**Statement-II: FRI is a component of the Digital Intelligence Platform (DIP) ✓**

- **DIP** enables **real-time intelligence sharing** among banks, telecom operators, police, and security agencies.
- While true, this statement **does not directly explain** how FRI functions as a warning tool, making the relationship **non-explanatory**.

**21) Answer (c) Both I and II**

**Explanation**

**Statement (I): ICAO is a specialized UN agency under the Chicago Convention ✓**

- The **International Civil Aviation Organization (ICAO)** was established under the **Chicago Convention, 1944**.
- It functions as a **specialized agency of the United Nations**, responsible for setting **global Standards and Recommended Practices (SARPs)** for **safety, security, efficiency, and environmental protection** in civil aviation.

**Statement (II): ICAO Council has 36 members elected for three-year terms ✓**

- The **ICAO Council** is the **executive body** of ICAO.
- It consists of **36 member states**, elected by the **ICAO Assembly (193 member states)** for **three-year terms**, and oversees policy and technical matters between Assembly sessions.

**22) Answer (d) I only**

**Explanation**

**Statement (I): SAGAR's five pillars include connectivity and infrastructure ✓**

- **SAGAR (Security and Growth for All in the Region)** includes five pillars: **Security cooperation, economic/trade integration, capacity building & disaster management, sustainable development, and connectivity & infrastructure**.

**Statement (II): MAHASAGAR is limited to disaster management ✗**

- **MAHASAGAR** is a broader doctrine encompassing **security, economic integration, infrastructure, and geopolitical objectives**, not merely disaster response.

**Statement (III): India's assistance is purely humanitarian ✗**

- Assistance under **MAHASAGAR** blends **humanitarian outreach with strategic maritime objectives**, reflecting India's **geopolitical and economic engagement** in the Indian Ocean Region.

**23) Answer (a) II, III and IV only**

**Explanation**

**Statement (I): LVM3 places satellites in SSO ✗**

- **LVM3 (~640 tonnes)** is primarily designed for **GTO/LEO missions**, not Sun-Synchronous Orbit (SSO) as stated.

**Statement (II): NSIL is ISRO's commercial arm since 2019 ✓**

- **NewSpace India Limited (NSIL)** was established in **2019** as **ISRO's commercial arm** to facilitate **commercial launch services and satellite missions**.

**Statement (III): BlueBird Block-2 enables direct-to-mobile 4G/5G connectivity ✓**

- **BlueBird Block-2** satellites are part of a **LEO constellation** enabling **direct-to-mobile broadband connectivity**.

**Statement (IV): LVM3-M6 was the sixth operational flight from Sriharikota ✓**

- **LVM3-M6** denotes the **sixth operational mission** of LVM3, launched from **Sriharikota**, showcasing India's **commercial launch capability**.

**24) Answer (c) II, III and IV only**

**Explanation**

**Statement (I): Thanjavur painting originated outside Tamil Nadu ✗**

- **Thanjavur painting** originated in **Tamil Nadu** and flourished under **Chola, Nayak, and Maratha rulers**, making the statement incorrect.

**Statement (II): Thanjavur painting has a GI tag** ✓

- It is protected under the **Geographical Indications (GI) Act**, safeguarding regional identity and artisans.

**Statement (III): Uses gold foil, glass beads, and semi-precious stones** ✓

- Hallmark features include **vivid colours, gold embellishments, and ornamental materials**.

**Statement (IV): 'Palagai Padam' refers to paintings on wooden planks** ✓

- Traditional Thanjavur paintings are executed on **wooden boards**, known as **Palagai Padam**.

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

**Explanation**

**Pair (1): Vitthala Temple – Chola architecture** ✗

- The **Vitthala Temple** at Hampi is a masterpiece of **Vijayanagara architecture**, not Chola.

**Pair (2): Hampi – Tungabhadra basin, Karnataka** ✓

- **Hampi** is located in the **Tungabhadra River basin** in **Karnataka**, the former capital of the **Vijayanagara Empire**.

**Pair (3): Krishna Temple – Vijayanagara period** ✓

- The **Krishna Temple** was built during the **Vijayanagara era**, reflecting its distinctive architectural style.

**26) Answer (a) Both Statement-I and Statement-II are correct and Statement-II explains Statement-I**

**Explanation**

**Statement-I:** Industrial parks are designed to increase **productivity and operational efficiency** by providing shared infrastructure, streamlined processes, and a facilitative regulatory environment. ✓

- Industrial parks reduce **costs, time, and transaction frictions** for firms.
- Shared facilities (power, water, logistics, labs, security) and **single-window clearances** enhance efficiency.

**Statement-II:** These features enable industries to operate more efficiently and productively. ✓

- The very **design features**—shared infrastructure, predictable regulations, and faster approvals—**directly explain** the productivity gains cited in Statement-I.
- Hence, Statement-II **logically explains** Statement-I.

**27) Answer (a) Both Statement-I and Statement-II are correct and Statement-II explains Statement-I**

**Explanation**

**Statement-I:** Patent applications in India have crossed **1,10,000**, reflecting robust growth in IPR filings. ✓

- Recent data show a **record surge** in patent filings, indicating a strengthening innovation ecosystem.

**Statement-II:** The surge is primarily driven by **Indian residents**, signalling a move towards **self-reliance in R&D**. ✓

- With **over ~61.9%** filings by residents, domestic innovation **explains the overall growth** noted in Statement-I.
- Thus, Statement-II **explains** Statement-I.

**28) Answer (c) Statement-I is correct, but Statement-II is incorrect**

**Explanation**

**Statement-I:** The creator economy has contributed significantly to **GDP and employment** in India. ✓

- Industry reports show large contributions (e.g., **YouTube's GDP impact**, expanding creator livelihoods).

**Statement-II:** Brand spending on creators is expected to decline. ✗

- Evidence indicates **rising brand allocations** to digital creators as platforms, reach, and ROI expand.
- Hence, Statement-II is **incorrect**.

### 29) Answer (c) Statement-I is correct, but Statement-II is incorrect

#### Explanation

**Statement-I: Open Market Operations (OMOs)** are a primary RBI tool to manage liquidity via buying/selling government securities. ✓

- OMOs are central to **systemic liquidity management**.

**Statement-II:** OMOs involve only purchases of securities. ✗

- OMOs include **both purchases and sales**, depending on liquidity conditions.
- Therefore, Statement-II is **incorrect**.

### 30) Answer (b) Both Statement-I and Statement-II are correct, but Statement-II does not explain Statement-I

#### Explanation

**Statement-I:** Swami Shraddhanand Saraswati was **assassinated in Delhi in 1926**. ✓

- A well-documented historical fact.

**Statement-II:** He was a prominent leader of the **Shuddhi movement**. ✓

- This describes his **role in social reform**, but it **does not explain** the assassination event stated in Statement-I.

### 31) Answer (c) I and III only

#### Explanation

**Statement (I): Sahkar Shakti-Sakha/Sakhi Model** is advocated under a **mission-mode approach**. ✓

- The **Sahkar Shakti-Sakha/Sakhi Model** is proposed as a **mission-mode reform** to strengthen cooperatives for **marginal farmers**, with focused institutional backing and time-bound outcomes.

**Statement (II): Most cooperatives do not face gender gaps**. ✗

- In reality, **most cooperatives are male-dominated**, and **significant gender gaps persist** in membership, leadership, and access—precisely why **gender-sensitive reforms** are recommended.

**Statement (III): Digital Public Infrastructure and Cooperative Stack** are recommended. ✓

- Recommendations emphasize **Digital Public Infrastructure (DPI)** and a **Cooperative Stack** to enhance outreach, transparency, credit access, and service delivery for marginal farmers.

### 32) Answer (a) II and III only

#### Explanation

**Statement (I): SIAs/EIAs** are always conducted by **independent agencies**. ✗

- In practice, **SIAs and EIAs often lack independence and rigor**, undermining procedural safeguards under the **RFCTLARR Act, 2013**.

**Statement (II): Arbitrary reclassification of land** reduces compensation. ✓

- **Manipulation in land classification** to lower compensation has been reported, violating **fairness and transparency** principles.

**Statement (III): Loss of customary forest rights** should be treated as **economic displacement**. ✓

- Committees have emphasized that **loss of customary forest rights** constitutes **economic displacement**, necessitating **full rehabilitation**.

**Statement (IV): NMC** has been fully effective across projects. ✗

- The **National Monitoring Committee (NMC)** has **not been uniformly effective**, especially in large and complex projects.

### 33) Answer (c) Only three

#### Explanation

**Pair (1): Singaravelu Chettiar** — **First President of CPI**. ✓

- A pioneering **labour leader and freedom fighter**, he served as the **first President** of the CPI.

### Pair (2): S.V. Ghate — Early General Secretary of CPI ✓

- He was among the **first General Secretaries**, playing a key organizational role.

### Pair (3): Abani Mukherjee — Founder in Tashkent (1920) ✓

- He was among the **seven revolutionaries** who founded the CPI in exile at Tashkent.

### 34) Answer (a) Ministry of Skill Development and Entrepreneurship

#### Explanation

#### Option (a): Ministry of Skill Development and Entrepreneurship ✓

- PM-SETU is implemented by this Ministry to **upgrade ITIs**, align curricula with industry needs, and enhance employability.

#### Option (b): Ministry of Labour and Employment ✗

- Not the implementing authority for PM-SETU.

#### Option (c): Ministry of Heavy Industries ✗

- Unrelated to ITI upgradation under PM-SETU.

#### Option (d): Ministry of Education ✗

- Focuses on formal education, not vocational ITI transformation under this scheme.

### 35) Answer (a) A nuclear-capable intermediate-range submarine-launched ballistic missile

#### Explanation

#### Option (a): Nuclear-capable intermediate-range SLBM developed by DRDO ✓

- K-4 is an **SLBM** (~3,500 km range), **nuclear-capable**, deployed on **Arihant-class SSBNs**, completing the **sea-based leg of India's nuclear triad** and ensuring **credible second-strike capability**.

#### Option (b): Air-to-air missile ✗

- Incorrect classification.

#### Option (c): Anti-ship missile for surface vessels ✗

- K-4 is **not** an anti-ship system.

#### Option (d): Cruise missile ✗

- K-4 is a **ballistic**, not cruise, missile.

### 36) Answer (b) A tripartite initiative to prevent the trade in conflict diamonds

#### Explanation

#### Option (a): Environmental regulation framework for mining industries ✗

- The **Kimberley Process (KP)** is **not** an environmental or mining regulation mechanism.

#### Option (b): Tripartite initiative to prevent conflict diamonds ✓

- The **Kimberley Process (2003)** is a **tripartite partnership** involving:
  - **Governments**
  - **Diamond industry**
  - **Civil society**
- Its objective is to **prevent "conflict diamonds"** (used to finance armed conflicts) from entering the **legitimate diamond trade**.
- Covers **~99% of global rough diamond trade**, with **60 participants (including the EU)**.

#### Option (c): Certification for gold and precious metals ✗

- Gold certification falls under **other frameworks**, not KP.

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**Option (d): Bilateral agreement between India and South Africa ✗**

- KP is a **multilateral global framework**, not bilateral.

**37) Answer (d) Maharashtra**

**Explanation**

**Option (a): Gujarat ✗**

- No such archaeological discovery reported.

**Option (b): Karnataka ✗**

- Incorrect location.

**Option (c): Rajasthan ✗**

- Not associated with the discovery.

**Option (d): Maharashtra ✓**

- **India's largest circular labyrinth** was discovered at **Boramani grassland, Solapur district, Maharashtra**.
- Dated to the **Satavahana period (1st–3rd century CE)**.
- Features **15 concentric stone circuits**, the highest in India.
- Linked to **Indo-Roman trade networks** and possible **ritual/symbolic use**.

**38) Answer (d) It is a non-profit organization registered under the Societies Registration Act, 1860**

**Explanation**

**Option (a): Established solely by Indian industry ✗**

- QCI was established **jointly by Government of India and industry**.

**Option (b): Chairman appointed by the President ✗**

- Chairman is appointed by the **Prime Minister** on **industry recommendation**.

**Option (c): Nodal ministry is Ministry of Consumer Affairs ✗**

- Nodal ministry is **DPIIT, Ministry of Commerce and Industry**.

**Option (d): Non-profit under Societies Registration Act, 1860 ✓**

- **Quality Council of India (QCI)** is a **non-profit autonomous body**, registered under the **Societies Registration Act, 1860**.
- Plays a key role in **quality certification, accreditation, and standardization**.

**39) Answer (b) Austro-Asiatic (Munda)**

**Explanation**

**Option (a): Tibeto-Burman ✗**

- Predominant in **Northeast India**.

**Option (b): Austro-Asiatic (Munda) ✓**

- **Santhali** belongs to the **Munda branch of the Austro-Asiatic family**.
- Spoken mainly in **Jharkhand, Odisha, West Bengal, Bihar**.
- Written in the **OI Chiki script**.
- Added to the **Eighth Schedule** by the **92nd Constitutional Amendment Act, 2003**.

**Option (c): Indo-Aryan ✗**

- Includes Hindi, Bengali, Marathi, etc.

**Option (d): Dravidian ✗**

- Includes Tamil, Telugu, Kannada, Malayalam.

**40) Answer (a) Nigeria, Chad, Cameroon, and Niger**

### Explanation

**Option (a): Nigeria, Chad, Cameroon, and Niger ✓**

- **Lake Chad** is located at the **conjunction of four countries**:
  - **Nigeria**
  - **Chad**
  - **Cameroon**
  - **Niger**
- It is a **freshwater lake** vital for **fisheries, agriculture, and livelihoods** of millions.
- Managed regionally through the **Lake Chad Basin Commission**.

**Option (b): Nigeria, Mali, Burkina Faso, Benin ✗**

- Mali, Burkina Faso, Benin do **not** border Lake Chad.

**Option (c): Nigeria, Ghana, Togo, Benin ✗**

- Incorrect regional grouping.

**Option (d): Nigeria, Equatorial Guinea, Cameroon, CAR ✗**

- Equatorial Guinea and CAR are **not adjacent** to Lake Chad.

**41) Answer (a) I only**

### Explanation

**Statement (I): PMGSY was launched in December 2000 to provide rural road connectivity ✓**

- **Pradhan Mantri Gram Sadak Yojana (PMGSY)** is a **centrally sponsored scheme** launched in **December 2000** to ensure **all-weather road connectivity** to **unconnected rural habitations**, directly supporting **rural development and poverty alleviation**.

**Statement (II): Population threshold for plains is more than 1000 under PMGSY-IV ✗**

- Under **PMGSY-IV**, the population threshold for **plain areas** is **500+**, **not more than 1000**.
- Hence, this statement is **incorrect**.

**42) Answer (a) I and II only**

### Explanation

**Statement (I): IOC was established in 1960 to promote marine science cooperation ✓**

- The **Intergovernmental Oceanographic Commission (IOC)** of **UNESCO** was established in **1960** to promote **international cooperation in marine science**.

**Statement (II): IOC coordinates the UN Decade of Ocean Science (2021–2030) ✓**

- IOC is the **coordinating body** for the **UN Decade of Ocean Science for Sustainable Development (2021–2030)**.

**Statement (III): IOC Secretariat is located in Geneva ✗**

- The **IOC Secretariat** is located in **Paris, France**, not Geneva.

**43) Answer (c) I, II and III only**

### Explanation

**Statement (I): BIS sets nitrate limit at 45 mg/l ✓**

- The **Bureau of Indian Standards (BIS)** prescribes **45 mg/l** as the permissible nitrate limit in drinking water.

**Statement (II): Fertilizer overuse is a major cause of nitrate contamination ✓**

- **Excessive nitrogen-based fertilizers** are a primary source of groundwater nitrate pollution.

**Statement (III): High nitrate levels cause methemoglobinemia ✓**

- Elevated nitrate levels can cause **methemoglobinemia (blue baby syndrome)**, especially in infants.

**Statement (IV): Nitrate contamination cannot cause eutrophication ✗**

- Nitrates **do cause eutrophication**, leading to **algal blooms and ecological imbalance**.
- Hence, this statement is **incorrect**.

**44) Answer (a) I, II and III only**

**Explanation**

**Statement (I): UDGM portal helps trace unclaimed bank deposits ✓**

- UDGM enables citizens to trace **unclaimed bank deposits**.

**Statement (II): MITRA portal helps trace unclaimed mutual fund assets ✓**

- MITRA is dedicated to **unclaimed mutual fund investments**.

**Statement (III): Bima Bharosa portal helps trace unclaimed insurance amounts ✓**

- Bima Bharosa facilitates tracing of **unclaimed insurance funds**.

**Statement (IV): Dedicated national portal exists for unclaimed pension funds ✗**

- No dedicated national digital portal currently exists for **unclaimed pension balances**.

**45) Answer (c) I, II and III only**

**Explanation**

**Statement (I): Amendment aims to enhance ease of doing business ✓**

- The Colliery Control (Amendment) Rules, 2025 seek to improve **ease of doing business** in the coal sector.

**Statement (II): Prior CCO permission for coal companies is abolished ✓**

- Coal companies no longer require prior approval from the Coal Control Organisation (CCO) to open mines.

**Statement (III): Company boards approve mine openings ✓**

- Approval authority is now vested with the **board of the concerned coal company**.

**Statement (IV): Approval for non-company entities no longer rests with CCO ✗**

- For **non-company entities**, approval continues to rest with the CCO, making this statement **incorrect**.

**46) Answer (d) I, II and III**

**Explanation**

**Statement (I): Chenab receives Jhelum in Pakistan and later joins Sutlej ✓**

- The **Chenab River** flows into **Pakistan**, where it is joined by the **Jhelum River**.
- Subsequently, Chenab merges with other tributaries and finally contributes to the **Indus river system**, making this statement **correct**.

**Statement (II): Chenab originates from the confluence of Chandra and Bhaga ✓**

- The Chenab is formed at **Tandi in Himachal Pradesh** by the confluence of the **Chandra and Bhaga rivers**.
- This is a **standard geographical fact**.

**Statement (III): Chenab flows west between the Siwalik Range and Lesser Himalayas in J&K ✓**

- In **Jammu & Kashmir**, the river flows through rugged terrain influenced by the **Lesser Himalayas**, with the broader Himalayan system shaping its course.
- The statement is **broadly correct in UPSC geography context**.

**47) Answer (d) I and III only**

**Explanation**

**Statement (I): Ratanmahal Wildlife Sanctuary is located in Dahod district along the Gujarat-MP border ✓**

- **Ratanmahal Wildlife Sanctuary** lies in **Dahod district of Gujarat**, adjacent to **Madhya Pradesh**, making this statement **correct**.

**Statement (II): Sanctuary fauna includes multiple large species (as implied) ✗**

- While the sanctuary hosts diverse fauna, the **statement as framed is not directly substantiated** in the given context and overgeneralizes species presence.
- Hence, it is **incorrect**.

**Statement (III): Ratanmahal houses the highest sloth bear population in Gujarat ✓**

- Ratanmahal is widely regarded as a **stronghold of sloth bears in Gujarat**, making this statement **correct**.

**48) Answer (a) Only one**

**Explanation**

**Pair (1): ITEWC – Mumbai ✗**

- The **Indian Tsunami Early Warning Centre (ITEWC)** is located in **Hyderabad**, not Mumbai.

**Pair (2): TRRP recognition renewable every two years ✗**

- **UNESCO-IOC Tsunami Ready Recognition Programme** certification is **renewable every four years**, not two.

**Pair (3): NDMA guidelines recommend holistic tsunami risk management ✓**

- **NDMA tsunami guidelines** emphasize **awareness, capacity building, education, training, research, and technology**, not just technological upgradation.

☞ **Only one pair is correctly matched.**

**49) Answer (d) None**

**Explanation**

**Pair (1): Somalia – Ethiopia (North) ✗**

- Somalia borders **Ethiopia to the west**, not the north.

**Pair (2): Puntland – Kenya ✗**

- **Puntland** does **not** share a border with Kenya; it lies in **northeastern Somalia**.

**Pair (3): Somaliland – Djibouti (directional mismatch) ✗**

- While Somaliland borders **Djibouti**, the **directional description is incorrect**, making the pair invalid.

☞ **No pair is correctly matched.**

**50) Answer (d) All four**

**Explanation**

**Pair (1): Permethrin – banned insecticide ✓**

- **Permethrin** is explicitly prohibited under **IS 19412:2025**.

**Pair (2): Benzyl cyanide – prohibited fragrance intermediate ✓**

- Identified as a **banned synthetic fragrance intermediate** due to health risks.

**Pair (3): Diphenylamine – prohibited substance ✓**

- Listed among **disallowed chemicals** in incense sticks.

**Pair (4): Alethrin – banned insecticidal chemical ✓**

- **Alethrin** is explicitly banned because of **toxicity concerns**.