

# General Studies

## Current Affair Test (July-2025)

### 1. Solution: c)

- Statement 1 is correct: The Kolhapuri chappal was granted a GI tag in 2019. Importantly, this registration is not limited to Kolhapur district in Maharashtra but is a joint tag covering artisans in several districts of both Maharashtra and Karnataka, including Belgaum, Bagalkot, and Dharwad, acknowledging the craft's regional spread.
- Statement 2 is correct: The uniqueness of the Kolhapuri chappal lies in its traditional, eco-friendly production method. It is crafted using vegetable-tanned buffalo hide, which makes it biodegradable. A defining feature is that the pieces are stitched and braided together, and the entire footwear is made without the use of any nails, which contributes to its flexibility and comfort.
- Statement 3 is incorrect: This statement highlights a critical limitation of IP laws concerning community crafts. The GI protection primarily safeguards against the misuse of the registered name (e.g., marketing a product as "Kolhapuri" when it's not from the designated region). It does not automatically permit monetary claims for design imitation if the protected name is not used. As seen in the Prada issue, since the brand did not use the term "Kolhapuri," infringement claims under the current GI framework are weak.

### 2. Solution: b)

- Statement 1 is incorrect: The primary objective of the Sugamya Bharat App is not job applications. Its main purpose is to make India more accessible for Persons with Disabilities and the elderly. It functions as a crowdsourcing platform where users can report accessibility-related issues in infrastructure, transport, and ICT systems, thereby fostering an inclusive environment.
- Statement 2 is correct: The app was launched by the Department of Empowerment of Persons with Disabilities (DEPwD) under the Ministry of Social Justice and Empowerment. A key feature is its reliance on citizen participation (Jan-Bhagidari), where users can report barriers, effectively crowdsourcing data on inaccessibility across the country as part of the Accessible India Campaign.
- Statement 3 is incorrect: The app features a comprehensive complaint redressal system. Users can upload geo-tagged photos to report issues, and the system allows for tracking the status of these complaints. A high resolution rate (1,897 out of 2,705 complaints resolved by June 2025), indicates that the mechanism includes resolution

and not just flagging.

### 3. Solution: a)

- Statement-I is correct: India has officially gone on record to reject the "supplemental award" issued by the Court of Arbitration (COA). India's position is that this award has no legal standing and is not binding, as it emanates from a body whose very formation is contested.
- Statement-II is correct: The fundamental reason for India's rejection lies in its stance on the court's legitimacy. India maintains that the Court of Arbitration was "illegally constituted". This is because it was formed unilaterally at Pakistan's behest, bypassing the graded mechanism of dispute resolution outlined in the Indus Waters Treaty (IWT). The IWT requires mutual agreement for such a court to be formed under Annexure G.
- Statement-II provides the direct and primary explanation for Statement-I.

### 4. Solution: d)

- Statement 1 is incorrect: The Dhole (*Cuon alpinus*) is classified as 'Endangered' on the IUCN Red List, not 'Vulnerable'. This higher threat category reflects its declining population due to habitat loss, prey depletion, and disease.
- Statement 2 is incorrect: The distribution of dholes in India is not limited to just two locations. While they are found in the Western Ghats and have reappeared in the Kaziranga-Karbi Anglong Landscape, their habitat also includes the Eastern Ghats, parts of central India, and the northeast, indicating a wider, albeit fragmented, distribution.
- Statement 3 is incorrect: Dhole packs are known to be matriarchal, meaning they are typically led by a dominant female, not a male. While they are highly coordinated and effective hunters, this detail about their social structure is a key characteristic of the species. They are vital for maintaining ecological balance by regulating prey populations.

### 5. Solution: c)

'Operation Deep Manifest' was a targeted enforcement operation conducted by the Directorate of Revenue Intelligence (DRI). The primary objective of this operation was to identify and dismantle sophisticated smuggling networks. These networks were attempting to circumvent India's import ban on Pakistani goods, which was imposed for security and political reasons.

The operation successfully intercepted dozens of containers where goods originating from Pakistan were being falsely declared as originating from other countries, such as the UAE, and routed through third-

country ports like Dubai's Jebel Ali. The operation highlighted the use of data analytics and intelligence by the DRI to protect India's economic security and enforce its trade policies.

#### 6. Solution: a)

- Statement 1 is incorrect: The Ratle Hydroelectric Project is indeed a run-of-the-river project, but it is situated on the Chenab River in the Kishtwar district, not the Jhelum river.
- Statement 2 is incorrect: The Kishenganga Hydroelectric Project diverts water from the Kishenganga River (a tributary of the Jhelum). However, the water is diverted into the Jhelum basin (specifically to Bonar Nallah, another tributary of Jhelum) to maximize the hydraulic head for power generation. It is not diverted to the Chenab basin.
- Statement 3 is correct: Both projects are located in the Union Territory of Jammu and Kashmir. The Ratle project is in the Kishtwar district, and the Kishenganga project is in the Bandipora district. Their location in this sensitive region underlines their strategic importance for energy security and regional development.

#### 7. Solution: a)

- Statement I is a factual premise about India's stated position. India has indicated that it might suspend the IWT, linking this to what it considers Pakistan's failure to prevent cross-border terrorism, which India views as a breach of mutual trust and obligations.
- Statement II is correct and directly relates to Statement I. The Vienna Convention on the Law of Treaties (Article 60) is the primary international legal instrument that codifies the principle of responding to a breach. It explicitly allows a party to invoke the material breach of a treaty by another party as a ground for suspending its operation. This is the legal basis India cites for its position. Therefore, Statement II correctly explains the legal foundation for the action mentioned in Statement I.

#### 8. Solution: b)

- Statement 1 is incorrect: Litchi is native to Southern China, not the Indian subcontinent. Furthermore, its ideal agro-climatic condition is not uniformly tropical; it specifically requires dry, cool winters for successful flowering, followed by warmer temperatures for fruit growth. Continuous high humidity is not ideal.
- Statement 2 is incorrect: Bihar is the largest producer of litchi in India in terms of total output (~221.7 thousand MT). West Bengal is noted for its high productivity (output per hectare), but not for being the largest producer overall. Punjab is also a significant producer but not the leader in either category mentioned in the statement.

- Statement 3 is correct: Government initiatives like the One District One Product (ODOP) scheme are designed to promote products with specific regional identities. This initiative plays a role in promoting litchi from areas like Pathankot (Punjab), helping farmers by creating export opportunities and connecting them with global markets, as seen in the consignment to Qatar.
- Statement 4 is correct: Litchi is a highly perishable fruit. To export it while preserving its quality and freshness, specialized logistics are essential. The use of reefer pallets (refrigerated pallets) is a standard practice in the cold chain to maintain a controlled temperature during transit, which is crucial for high-value horticultural exports.

#### 9. Solution: d)

The Kaziranga-Karbi Anglong Landscape (KKAL) is a vast, continuous forest patch crucial for the long-term survival of many species in Northeast India.

1. Kaziranga National Park: This is the core and most famous component of the landscape, lying to the north of the Karbi Anglong hills.
2. Ntangi National Park: The KKAL provides linkages to several protected areas, including Ntangi National Park, which is located in Nagaland. This highlights the trans-state nature of this ecological corridor.
3. Brahmaputra River: The landscape is explicitly described as lying to the south of the Brahmaputra River. The river forms the northern boundary of Kaziranga, making it a defining geographical feature of the entire landscape.
4. Pakke Tiger Reserve: Pakke Tiger Reserve (in Arunachal Pradesh) is one of the protected areas to which the KKAL is linked, facilitating genetic exchange and movement of animals like tigers and elephants.

#### 10. Solution: d)

- Statement 1 is incorrect: The IWT provides a graded, three-tier mechanism for dispute resolution. The first step involves raising the issue at the Permanent Indus Commission (PIC). If the PIC cannot resolve the "question," it can be taken to a 'Neutral Expert'. The Court of Arbitration is the final and third step in the process, meant for resolving "disputes" rather than "questions," and its formation has strict procedural requirements. It is not the first step.
- Statement 2 is incorrect: The IWT allocates the waters of the Western Rivers (Indus, Jhelum, Chenab) to Pakistan. India is permitted certain uses, including domestic, non-consumptive, and agricultural use, and importantly, for run-of-the-river hydroelectric projects. However, these uses are subject to strict conditions and limitations on design and storage capacity to ensure unrestricted flow to Pakistan. The use is not unconditional.

### 11. Solution: a)

- Statement-I is correct. Group Captain Shubhanshu Shukla's participation in the Ax-4 mission made him the first Indian to reach the International Space Station (ISS). This is a historic milestone, reviving India's human spaceflight activities after a long gap since Rakesh Sharma's flight in 1984.
- Statement-II is also correct. The experience and data gained from this mission, along with the international collaboration, directly complement and provide a boost to India's indigenous space ambitions. These ambitions include the upcoming Gaganyaan mission (India's first crewed spaceflight) and the plan to build a national space station by 2035.
- Statement-II provides the correct explanation for Statement-I's significance.

### 12. Solution: a)

- Statement 1 is incorrect. The RBI has reduced the PSL target for SFBs, not increased it. The overall target was lowered from 75% to 60% of ANBC. This change was made to provide SFBs with greater lending flexibility and potentially improve their profitability.
- Statement 2 is correct. The concept of differentiated banks like SFBs was introduced by the RBI based on the recommendations of the Nachiket Mor Committee in 2013. This committee focused on expanding financial inclusion.
- Statement 3 is correct. One of the specific operational features and mandates for SFBs is that 50% of their loan portfolio must be composed of loans to the MSME sector. This aligns with their primary objective of serving underserved sectors of the economy.

### 13. Solution: b)

- Statement 1 is incorrect. The project's objective is to divert surplus water from the Godavari River to the Krishna River system, not the other way around. This water is then intended to be transferred to the Penna basin to irrigate the drought-prone Rayalaseema region.
- Statement 2 is correct. The project features include constructing a reservoir at Bollapalli. From there, water is planned to be lifted and channelled to the Banakacherla cross-regulator via a tunnel that passes through the Nallamala forest.
- Statement 3 is correct. Telangana has formally objected to the project, citing a violation of the AP Reorganisation Act, 2014. The state argues that the Act mandates prior apex council approvals for new projects and that Andhra Pradesh has not secured the necessary clearances from the Krishna River Management Board (KRMB), Godavari River Management Board (GRMB), or the Central Water Commission (CWC).

### 14. Solution: b)

- Pair 1 is correctly matched. The Pir Ki Gali Tunnel is being constructed on the historic Mughal Road. Its primary strategic purpose is to provide all-weather connectivity and serve as an alternate route to the Kashmir Valley, which is crucial for military mobility and reducing reliance on NH44.
- Pair 2 is correctly matched. The Sadhna Tunnel is designed to provide all-weather connectivity between Kupwara and the remote Karnah region, which lies very close to the Line of Control (LoC). This is vital for troop movement and for the local population during heavy snowfall.
- Pair 3 is incorrectly matched. The Trehgam-Chamkote Road connects Kupwara to Teetwal, another area near the LoC. It is the Zaznar-Shopian Road that is part of the proposed Surankote-Shopian-Baramulla Highway.

### 15. Solution: d)

- (a) is incorrect. The Tawi River is a left-bank tributary of the Chenab River, not a right-bank tributary.
- (b) is incorrect. The Tawi River originates from the Kailash Kund glacier near Bhaderwah in the Doda district of Jammu and Kashmir, not the Siachen Glacier.
- (c) is incorrect. The river is revered in Hindu texts, such as the Vishnudharmottara Purana, as Surya Putri (Daughter of the Sun God), not Chandraputri (Daughter of the Moon God).
- (d) is correct. The Tawi River is known as the lifeline of Jammu city, serving as its primary water source. It flows through the administrative districts of Doda, Udhampur, and Jammu before entering Pakistan.

### 16. Solution: c)

- Statement 1 is incorrect. The initiative was launched by the UN Secretary-General António Guterres, not the General Assembly. Furthermore, its purpose is to evaluate how mandates are executed, not to review or alter the mandates themselves, which remain the prerogative of member states.
- Statement 2 is correct. A core feature of the UN80 initiative is relocation and rationalization. This includes a plan to shift some operations away from expensive headquarters cities like New York and Geneva to reduce administrative costs and improve efficiency.
- Statement 3 is correct. The initiative signifies a fundamental shift in the UN's operational philosophy. It aims to move away from simply reporting on the volume of activities conducted and towards a more rigorous framework focused on results-oriented delivery and demonstrating tangible impact.

### 17. Solution: a)

- Statement-I is correct. SFBs are required to maintain a Capital Adequacy Ratio (CAR) of 15%



on their risk-weighted assets. This is significantly higher than the regulatory requirement for most scheduled commercial banks in India (which is currently 9% plus a capital conservation buffer).

- Statement-II is also correct. SFBs were created with the objective of promoting financial inclusion by lending to small and marginal farmers, MSMEs, and the informal sector. These segments are often perceived as having a higher credit risk profile. Therefore, a higher CAR is mandated as a prudential measure to ensure that these banks have a sufficient capital cushion to absorb unexpected losses, thereby maintaining financial stability and protecting the interests of their depositors.
- Statement-II provides the correct explanation for Statement-I.

### 18. Solution: c)

(a) is incorrect. The tool uses dCas9 and does not cut or permanently edit the plant's DNA. It acts as a switch, not a pair of scissors.

(b) is incorrect. The tool is designed to protect in two ways: it helps plants survive both heat (an abiotic stress) and bacterial disease (a biotic stress) by activating different sets of helpful genes.

(c) is correct. The key innovation is the tool's ability to act as a "smart" or regulated switch. It remains dormant under normal conditions and activates the plant's natural defense genes only in response to stress (like heat or pathogens). This conserves the plant's metabolic energy, which would otherwise be wasted if the defense mechanism was permanently active. This energy efficiency contributes directly to resilience and productivity.

(d) is incorrect. The tool is highlighted as being particularly safe and natural because the regulatory component is derived from a tomato protein, not from foreign bacteria. This is a key distinction from many other GMO approaches.

### 19. Solution: Bb)

- Statement 1 is correct. SFBs are licensed under the Banking Regulation Act, 1949, and are permitted to carry out basic banking activities, which include the acceptance of all types of deposits from the public (e.g., savings, current, fixed, recurring).
- Statement 2 is incorrect. The mandate requires SFBs to open at least 25% of their banking outlets (branches) in unbanked rural centres, not 50%.
- Statement 3 is correct. The initial licensing condition for SFBs is to have a minimum paid-up voting equity capital / net worth of ₹100 crore. However, they are required to increase their minimum net worth to ₹200 crore within five years of starting their business.
- Statement 4 is incorrect. SFBs can act as distributors for third-party financial products like mutual funds, pensions, and insurance. They can distribute non-risk-sharing financial products.

This means they act as agents and do not bear the underwriting risk themselves.

### 20. Solution: d)

Socotra Island is located in the Indian Ocean, approximately 240 kilometers east of the Horn of Africa (Somalia) and 380 kilometers south of the Arabian Peninsula (Yemen). This positions it strategically at the entrance to the Gulf of Aden, which leads to the Bab el-Mandeb Strait. This strait is a critical maritime chokepoint connecting the Indian Ocean to the Red Sea, and subsequently to the Suez Canal and the Mediterranean Sea. Its location gives it significant geopolitical importance for monitoring and influencing maritime traffic in this vital global shipping lane.

### 21. Solution: c)

- Statement 1 is correct. The DGCA was initially an attached office of the Ministry of Civil Aviation. Its status was elevated to that of a statutory body through the Aircraft (Amendment) Act, 2020. This grant of statutory power strengthens its authority to enforce safety regulations and standards in the aviation sector.
- Statement 2 is incorrect. The DGCA's mandate is comprehensive. Besides granting Air Operator's Certificates to airlines, it is also responsible for the certification of airports to ensure they meet the required operational safety and efficiency standards. While the AAI manages and develops airports, the safety certification is a key regulatory function of the DGCA.
- Statement 3 is correct. The DGCA is the nodal agency that coordinates with the International Civil Aviation Organization (ICAO). It represents India in global aviation forums and is responsible for ensuring compliance with international standards, including undergoing the Universal Safety Oversight Audit Programme (USOAP) to benchmark its safety oversight capabilities against global best practices.

### 22. Solution: a)

- Statement-I is correct. One of the most significant advantages of using insect-based livestock feed is its potential to tackle Antimicrobial Resistance (AMR). The overuse of antibiotics in conventional animal farming as growth promoters is a major driver of AMR. By providing a sustainable and effective alternative, insect feed helps reduce the selective pressure that leads to the development of drug-resistant microbes.
- Statement-II is also correct. The mechanism through which insect-based feed helps combat AMR is by improving animal health naturally. These feeds are rich in proteins and other compounds that modulate the gut microbiota in a beneficial way. A healthier gut microbiome improves nutrient absorption and strengthens the

animal's immune system, thereby reducing the need for antibiotic growth promoters to prevent diseases and enhance growth.

- Since Statement-II provides the scientific reason why Statement-I is true, it is the correct explanation for Statement-I.

### 23. Solution: c)

- Al Udeid Air Base is located in Qatar (2). It is one of the most important US bases in the region, serving as the forward headquarters of the US Central Command (CENTCOM).
- Camp Arifjan is in Kuwait (3). It functions as a major logistics and administrative hub for the US Army Central (ARCENT) and supports operations in Iraq and the surrounding areas.
- Al Dhafra Air Base is situated in the United Arab Emirates (UAE) (4). It is a critical base for US air operations, including reconnaissance and strike missions, and is shared with the UAE Air Force.
- D. Fifth Fleet HQ is headquartered in Bahrain (1). The US Navy's Fifth Fleet is responsible for naval operations across the Persian Gulf, Red Sea, Arabian Sea, and parts of the Indian Ocean.

### 24. Solution: b)

- Statement 1 is incorrect. The Subarnarekha River originates near Piska/Nagri, close to Ranchi in Jharkhand, not Odisha. While it flows through Odisha in its lower course, its origin lies on the Chota Nagpur Plateau.
- Statement 2 is incorrect. The Hundru Falls, a major landmark, is located directly on the course of the Subarnarekha River itself, not on a tributary. The waterfall is situated in Jharkhand, where the river drops from a height of 98 metres.
- Statement 3 is correct. The Subarnarekha is not a tributary of any larger river system like the Ganga or Mahanadi. It maintains an independent course from its origin to its mouth. It flows through the states of Jharkhand, West Bengal, and Odisha before finally draining into the Bay of Bengal near Talsari in Odisha.

### 25. Solution: a)

- Statement 1 is correct. The Estimates Committee is the largest parliamentary committee and is composed of 30 members. A unique feature of this committee is that all its members are from the Lok Sabha; there is no representation from the Rajya Sabha.
- Statement 2 is incorrect. A Minister is explicitly barred from being elected as a member of the Estimates Committee. This rule is in place to ensure the committee's objective and unbiased scrutiny of the government's financial proposals and expenditures.
- Statement 3 is incorrect. The function of examining the reports and accounts of Public Undertakings is specifically assigned to a separate committee: the

Committee on Public Undertakings. The Estimates Committee's role is to scrutinize the estimates of government ministries and departments to suggest economies.

- Statement 4 is incorrect. The recommendations of the Estimates Committee, like those of other parliamentary committees, are advisory in nature. They are not binding on the government, although they hold significant persuasive value and the government is required to submit an Action Taken Report on them.

### 26. Solution: d)

- Statement 1 is incorrect. The B-2 Spirit is an advanced strategic stealth bomber, not primarily a reconnaissance aircraft. Its main role is to penetrate dense anti-aircraft defences to deliver both conventional and nuclear weapons on high-value targets. While it may have surveillance capabilities, its core function is offensive.
- Statement 2 is incorrect. The radar cross-section is as small as a bird, not an insect. In the context of radar technology, the difference between the radar signature of a bird and an insect is significant.

### 27. Solution: b)

- Statement 1 is incorrect. The operation was launched by the US Department of Defense, not a joint operation with NATO allies.
- Statement 2 is incorrect. The objective was to severely degrade Iran's nuclear weapons infrastructure, targeting key nuclear facilities like Fordow and Natanz. It was not aimed at Iran's naval capabilities.
- Statement 3 is correct. The weapons used include B-2 Spirit stealth bombers and Tomahawk Land Attack Cruise Missiles launched from a submarine.

### 28. Solution: a)

- Statement 1 is incorrect. A Level 2 advisory means "Exercise Increased Caution". The "Do Not Travel" recommendation corresponds to Level 4, which is the highest alert level.
- Statement 2 is incorrect. The advisory is not a blanket restriction. It applies a general Level 2 caution for the country but specifies higher risk levels for certain areas. For instance, it advises "Do Not Travel" (Level 4) to Jammu & Kashmir and areas near the India-Pakistan border, and "Reconsider Travel" (Level 3) to Manipur.
- Statement 3 is correct. The advisory explicitly mentions the reasons for caution, which include rising violent crime, the potential for terror attacks in crowded spaces, and ongoing ethnic violence in specific states like Manipur.
- Statement 4 is incorrect. The advisory explicitly warns that satellite phones are banned in India. It states that violating this rule can lead to significant penalties, including fines or imprisonment. It does not encourage their use.

**29. Solution: d)**

Option (d) is the most significant advantage. The production of conventional livestock feed, particularly soy and fishmeal, is resource-intensive and has a large environmental footprint. Soy cultivation is linked to deforestation, while fishing for fishmeal contributes to overfishing. Insect farming, by contrast, requires far less land and water and generates significantly lower greenhouse gas emissions. This makes it a key tool for climate-smart agriculture and reducing the overall environmental impact of animal farming.

**30. Solution: b)**

- Statement I is correct. Giving the DGCA statutory status via the Aircraft (Amendment) Act, 2020, was a major reform. It elevated its position from a mere government department to a body with a distinct legal identity and authority, which is critical for enforcing stringent safety oversight.
- Statement II is correct and directly explains Statement I. The significance of becoming a statutory body lies in the powers it confers. This legal backing provides the DGCA with the necessary authority to create binding regulations, conduct thorough safety and security audits, and take punitive action (like imposing fines or revoking licenses) against entities that violate safety norms. This enhanced power is precisely why its establishment as a statutory body strengthens safety oversight.
- Statement III is incorrect. Before 2020, the DGCA was not an autonomous or independent organization. It was an attached office of the Ministry of Civil Aviation, meaning it functioned directly under the administrative control of the ministry. The move to a statutory body gave it more functional autonomy, but it was not fully independent before.

**31. Solution: a)**

- Statement 1 is incorrect. The initiative is funded through multiple sources, not exclusively CAMPA. The funds will be sourced from CAMPA, MNREGA, and state schemes, indicating a convergence of financial resources.
- Statement 2 is correct. This statement accurately captures the core ecological objective of the initiative. The Aravalli range acts as a natural barrier against desertification. The Green Wall initiative aims to strengthen this barrier by undertaking large-scale plantation and landscape restoration, thereby combating land degradation and preventing the spread of the desert towards the fertile plains of the National Capital Region.
- Statement 3 is incorrect. The initiative has a holistic approach to ecological restoration. The key features include the “rejuvenation of lakes and ponds” in addition to afforestation, agroforestry, and pasture development.

**32. Solution: d)**

- Statement I is correct. It accurately states the key partners (WHO and MoHFW, Government of India).
- Statement II is correct. It correctly identifies the core operational methodology of the NPSN. Tracking all cases of Acute Flaccid Paralysis (AFP), which presents with symptoms similar to poliomyelitis, is the globally recommended sensitive strategy to ensure that no case of polio is missed.
- Statement III is correct. It highlights the successful adaptation of the NPSN. With India being polio-free, the robust surveillance infrastructure and trained personnel of the NPSN are now being integrated into broader public health goals, such as the surveillance for measles, rubella, and other diseases, showcasing an efficient use of public health resources.

**33. Solution: d)**

- Statement-I is incorrect. The international partnership for the PRV is between Garden Reach Shipbuilders and Engineers Ltd. (GRSE), Kolkata, and Kongsberg, Norway, not Russia. Norway is a global leader in marine and polar technology, making this collaboration strategic.
- Statement-II is correct. This statement accurately captures the strategic impetus behind the project. Building the vessel indigenously at GRSE aligns perfectly with the ‘Make in India’ initiative, which promotes domestic manufacturing and technological self-sufficiency. The vessel’s purpose—deep-sea exploration, resource mapping, and climate research—directly supports the objectives of the ‘Blue Economy’ policy, which focuses on sustainable use of ocean resources for economic growth. This move is crucial for reducing dependence on leased foreign vessels for polar expeditions.

**34. Solution: b)**

- (a) is a key characteristic. Thermophiles are renowned for their heat-stable enzymes (thermozymes). These enzymes do not denature at high temperatures, which is why they are invaluable in industrial processes like the Polymerase Chain Reaction (PCR), which uses Taq polymerase from *Thermus aquaticus*.
- (b) is NOT a characteristic. By definition, thermophiles are “heat-loving” organisms. Their thriving temperature range is 45°C to 70°C. They are adapted to extreme heat and cannot thrive or grow optimally in moderate or low temperatures (mesophilic or psychrophilic ranges), such as below 40°C.
- (c) is a key characteristic. The cell membranes of thermophiles are specially adapted to resist melting in extreme heat. They contain a higher proportion of saturated fatty acids, which pack together more tightly than unsaturated fats, making the membrane more viscous and stable at high temperatures.



(d) is a key characteristic. To survive in extreme environments, which are often low in conventional organic nutrients, many thermophiles have evolved unique metabolic capabilities. They can perform chemosynthesis using inorganic compounds like sulfur or iron as energy sources, allowing them to colonize habitats like hot springs and hydrothermal vents.

**35. Solution: a)**

- Statement 1 is incorrect. The Kulsi River originates in the West Khasi Hills (Meghalaya) and flows into Assam. It does not originate in Bhutan.
- Statement 2 is incorrect. The Gangetic Dolphin is functionally blind. It lacks a functional eye lens and navigates, hunts, and communicates using a sophisticated system of high-frequency sounds known as echolocation, not eyesight.
- Statement 3 is correct. The construction of a hydropower project, which involves building a dam or barrage, fundamentally alters a river's flow, depth, and sediment regime. Such changes can disrupt the habitat of river dolphins, fragment their populations, and interfere with their movement and access to prey.

**36. Solution: c)**

- Statement 1 is correct. Mount Etna is on the eastern coast of Sicily, Italy, and it lies at the boundary of the African and Eurasian tectonic plates. The subduction of the African plate beneath the Eurasian plate is the primary driver of volcanic activity in this region, including at Mount Etna.
- Statement 2 is incorrect. Mount Etna is a stratovolcano, not a shield volcano. Stratovolcanoes (or composite volcanoes) are characterized by steep conical shapes built up by many layers of hardened lava, tephra, pumice, and ash.
- Statement 3 is correct. Mount Etna was inscribed as a UNESCO World Heritage Site in 2013. This recognition was granted for its immense geological significance, its role in scientific studies for over two millennia, and its cultural importance.

**37. Solution: b)**

- Statement 1 is incorrect. The President frames these regulations under Article 240 of the Constitution, which grants this power for certain Union Territories, specifically those without their own legislatures. Article 371 provides for special provisions for states like Maharashtra, Gujarat, Nagaland, etc., and is not applicable here.
- Statement 2 is correct. This statement accurately reflects the definition of domicile as per new regulations. It lays down clear criteria based on the duration of residence or education within Ladakh, aiming to protect local employment opportunities.
- Statement 3 is incorrect. The regulations were framed under Article 240 precisely because Ladakh is a Union Territory without a legislature. The new

framework consists of executive regulations, not the establishment of a legislative body.

- Statement 4 is correct. The Ladakh Autonomous Hill Development Councils (Amendment) Regulation, 2025, specifies that the one-third reservation for women in LAHDC seats will be implemented using a rotational system. This ensures that different constituencies are reserved for women over time, promoting broader political representation.

**38. Solution: a)**

- Statement 1 is incorrect. The dolphin's geographic distribution includes the Ganga, Brahmaputra, Meghna, and Karnaphuli-Sangu river systems across India, Nepal, and Bangladesh.
- Statement 2 is incorrect. The IUCN Red List status of the Gangetic Dolphin is Endangered, not 'Critically Endangered'.
- Statement 3 is correct. Gangetic dolphins are often found in areas with counter-currents, typically downstream of confluences or sharp meanders. This type of water flow is believed to concentrate fish and other prey, making it an efficient location for foraging for a species that relies on echolocation to hunt.

**39. Solution: d)**

- Statement 1 is incorrect. The NPSN works in close coordination and collaboration with state and district health officials. Its key functions include training these officials and supporting their efforts. The Surveillance Medical Officers (SMOs) are deployed within the existing health system to strengthen it, not to work independently of it.
- Statement 3 is incorrect. The NPSN was established in 1997, long before India was declared polio-free (which happened in 2014). It was created to achieve the goal of polio eradication by supporting surveillance and immunization campaigns, not as a post-eradication measure.

**40. Solution: c)**

- Statement-I is correct. Geologically, the Aravalli Range is one of the most ancient mountain ranges on Earth. It dates back to the Proterozoic Era, formed through the collision of tectonic plates, making it a classic example of an old fold mountain system that has since been heavily eroded.
- Statement-II is incorrect. The range runs parallel (in a southwest to northeast direction) to the path of the southwest monsoon winds from the Arabian Sea. Because it is parallel and not very high, it fails to act as an effective barrier to these moisture-laden winds. This is a primary reason why western Rajasthan remains arid.

**41. Solution: c)**

The Miyawaki Technique, a method for creating dense and fast-growing forests, is innovative but comes with challenges:

- **High Initial Costs:** Preparing soil to support a variety of native species and ensuring proper planting techniques require significant investment. This makes Statement 1 correct.
- **Difficulty in Degraded or Saline Lands:** The technique thrives in areas with fertile soil. However, its implementation on saline or heavily degraded lands is challenging unless extensive remediation measures are undertaken. This makes Statement 2 correct.
- **Incompatibility with Monoculture:** The Miyawaki Technique emphasizes biodiversity, requiring the planting of a mix of native species for ecological balance. This approach directly contrasts with monoculture practices, which focus on a single species. Thus, Statement 3 is correct.

#### 42. Solution: c)

A disrupted polar vortex leads to several significant atmospheric phenomena:

- **Sudden Stratospheric Warming (SSW):** This phenomenon occurs when the polar vortex weakens due to a sudden increase in stratospheric temperatures. The warming disrupts the vortex's stability, often leading to its splitting or displacement. Statement 1 is correct.
- **Wavy Jet Stream Patterns:** A weakened polar vortex disrupts the normally stable jet stream, causing it to develop meandering or wavy patterns. This allows cold Arctic air to move southward and warm air to intrude into the Arctic, resulting in extreme weather events in mid-latitudes. Statement 2 is correct.
- **Enhanced Cyclogenesis in the Arctic Region:** The instability caused by a disrupted polar vortex increases cyclonic activity (cyclogenesis) in the Arctic. This leads to more frequent and intense storms in the region. Statement 3 is correct.

#### 43. Solution: b)

Pulicat Lake and Nelapattu Bird Sanctuary provide significant ecological benefits:

- **Supporting Biodiversity:** Both sites are critical habitats for numerous bird species, including migratory birds like flamingos, pelicans, and storks, making them vital for maintaining biodiversity. Statement 1 is correct.
- **Natural Buffer Against Cyclones and Flooding:** Pulicat Lake, as a coastal wetland, acts as a buffer, reducing the impact of cyclones and mitigating coastal flooding by absorbing excess water. Statement 2 is correct.
- **Groundwater Recharge:** Brackish water systems like Pulicat Lake are not significant contributors to groundwater recharge due to the salinity of the water. Statement 3 is incorrect.

#### 44. Solution: a)

The Polar Vortex is a large area of low-pressure, cold

air surrounding the poles. Let's evaluate the given statements:

- **Statement 1 is Incorrect.** The polar vortex is strongest in winter, not summer, because the temperature gradient between the poles and the equator is highest during winter. This strong gradient intensifies the polar jet stream, strengthening the vortex.
- **Statement 2 is Correct.** When the polar vortex splits or weakens, it can disrupt the jet stream, allowing frigid Arctic air to move southward into mid-latitudes, leading to colder winters in regions like North America and Europe.
- **Statement 3 is Correct.** Although the polar vortex occurs in both hemispheres, its impact on weather is more pronounced in the Northern Hemisphere due to the presence of large landmasses and stronger interactions with the jet stream.

#### 45. Solution: c)

The Blue Flag Certification is an eco-label awarded by the Foundation for Environmental Education (FEE) to beaches, marinas, and boating operators meeting strict environmental, safety, and educational criteria. Its primary benefits include:

- Increased awareness among visitors about eco-friendly practices: Educational activities and signage promote responsible behaviour, increasing awareness of environmental issues.
- Enhanced environmental sustainability of local ecosystems: Compliance with Blue Flag standards requires conservation measures, pollution control, and habitat protection, ensuring sustainable ecosystems.
- Access to additional funding from the FEE for infrastructure development: While the certification offers guidelines and recognition, it does not provide direct funding for infrastructure development. Governments or local authorities must allocate resources to meet and maintain the standards.
- Improved international tourism potential: The Blue Flag symbolizes cleanliness, safety, and sustainability, attracting international tourists and enhancing the beach's global appeal.

#### 46. Solution: d)

The World Economic Forum (WEF) is a global organization fostering public-private collaboration to address international challenges.

Statement 1 is Correct. The WEF works closely with the UN to advance the 2030 Agenda for Sustainable Development through multi-stakeholder initiatives and innovative solutions.

Statement 2 is Correct. The WEF supports the G20 by providing insights, fostering dialogue, and facilitating public-private partnerships on pressing global economic and financial issues.

Statement 3 is Correct. The WEF collaborates with



regional and national governments to implement tailored development initiatives, including digital transformation and environmental sustainability projects.

Statement 4 is Correct. The WEF partners with the private sector to develop strategies for managing cybersecurity risks and ensuring data security.

#### 47. Solution: b)

Statement 1 (Incorrect): The Blue Flag certification is an eco-label awarded to environmentally sustainable beaches and marinas, unrelated to animal welfare. AWBI is not involved in this.

Statement 2 (Correct): AWBI provides training programs for law enforcement agencies, such as the police, to ensure they understand and enforce laws related to preventing cruelty to animals. It also trains volunteers to support animal welfare initiatives.

Statement 3 (Incorrect): AWBI does not regulate the sale and purchase of exotic animals in India. Instead, it focuses on promoting animal welfare, advising the government, and ensuring the enforcement of animal protection laws.

#### 48. Solution: c)

The Genome India Project is a research initiative aimed at mapping the genetic diversity of India for health and medical research.

- Data privacy and secure storage of genetic information (Correct): Ensuring secure storage and privacy of sensitive genetic data is a key ethical focus of the project.
- Informed consent from participants (Correct): Participants are required to give informed consent to ensure their voluntary involvement and understanding of the research objectives.
- Commercialization of genetic data for global pharmaceutical companies (Incorrect): The project is focused on research and public benefit, not commercialization. Ethical guidelines emphasize the non-commercial use of genetic data.
- Non-discrimination in genetic research outcomes (Correct): The project aims to promote inclusivity and prevent discrimination based on genetic information in research outcomes or applications.

#### 49. Solution: c)

Statement I (Correct): NOTTO maintains a centralized database for organ allocation and distribution to ensure transparency and fairness. It oversees the equitable distribution of organs to registered patients based on priority and medical criteria.

Statement II (Incorrect): While NOTTO plays a crucial role in organ transplant coordination, it does not directly regulate the legal and ethical aspects of transplantation surgeries. These aspects are governed by legal frameworks such as the Transplantation of Human Organs and Tissues Act (THOTA), 1994.

#### 50. Solution: a)

The Animal Welfare Board of India (AWBI) was established under the Prevention of Cruelty to Animals Act, 1960, making Statement 1 incorrect. It was not created under the Environment Protection Act, 1986.

The primary role of the AWBI is to oversee the implementation of the Prevention of Cruelty to Animals Act, 1960, ensuring compliance with its provisions and promoting animal welfare. This makes Statement 2 correct.

However, the AWBI does not have the authority to impose penalties on organizations or individuals for violations of animal welfare laws. Its role is largely advisory and regulatory, with enforcement powers lying with other authorities such as the police or judiciary. This makes Statement 3 incorrect.

#### 51. Solution: d)

- Bharat Forecasting System (1): This advanced numerical weather prediction system was developed by the Indian Institute of Tropical Meteorology (IITM), Pune (B). Its primary purpose is to provide highly localized, short-term weather forecasts (Y) down to the panchayat level. The correct combination is 1-B-Y.
- Large Hadron Collider (2): This is the world's most powerful particle accelerator, built and operated by CERN (European Organization for Nuclear Research) (C). Its main function is to probe the fundamental structure of matter (X) by colliding particles at nearly the speed of light. The correct combination is 2-C-X.
- Topological Invariant Detection (3): The new, simplified method for detecting these quantum properties was developed by scientists at the Raman Research Institute (RRI) (A). The method works by using the spectral function to identify hidden quantum properties (Z) in materials. The correct combination is 3-A-Z.

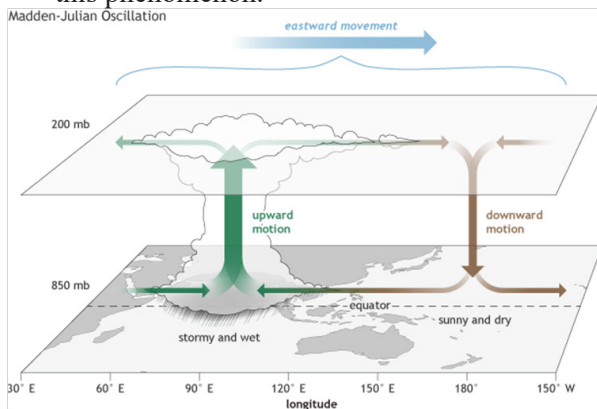
#### 52. Solution: a)

- Statement 1 is incorrect. The Honey Mission was launched by the Khadi and Village Industries Commission (KVIC), which operates under the Ministry of MSME (Micro, Small and Medium Enterprises), not the Ministry of Agriculture & Farmers' Welfare.
- Statement 2 is incorrect. Honey production rose from ~75,000 MT to 1.25 lakh MT, which is a growth of approximately 60-67%, not more than double (which would imply over 100% growth).
- Statement 3 is correct. The success of organic tribal honey, specifically 'Sonhani' honey from the Korea district in Chhattisgarh, is highlighted as an example of value addition and achieving global outreach.
- Statement 4 is incorrect. The top states listed are Uttar Pradesh, Gujarat, Jammu & Kashmir, West Bengal, and Arunachal Pradesh. While some are in the north and west, West Bengal and Arunachal

Pradesh are in the eastern and northeastern regions, respectively.

### 53. Solution: d)

- Statement-I is incorrect. The MJO is described as a short-term climate modulator, not a driver of seasonal patterns. MJO's influence is on an intra-seasonal timescale (completing a global circuit every 30-60 days), whereas ENSO has seasonal effects.
- Statement-II is correct. An active (enhanced convective) phase of the MJO over the Indian Ocean can trigger an early monsoon onset, boost cyclogenesis (formation of cyclones), and increase rainfall intensity. The early monsoon onset in 2024 and 2025 is cited as an example of this phenomenon.



### 54. Solution: b)

- Statement 1 is incorrect. The global IUCN status of Dugongs is Vulnerable, not 'Critically Endangered'.
- Statement 2 is correct. Dugongs are a Schedule I species under the Wildlife (Protection) Act, 1972. This places them in the category of animals receiving the highest level of legal protection in India, making hunting or poaching a serious offense.
- Statement 3 is correct. The biological traits of Dugongs make their populations slow to recover. They reach reproductive maturity late (9-10 years) and have a long birth interval, giving birth only once every 3-5 years. This slow reproductive rate is a key factor in their vulnerability to threats like habitat loss and poaching, as populations cannot rebound quickly from declines.

### 55. Solution: a)

- Statement 1 is incorrect. The AMCA is explicitly defined as a fifth-generation stealth fighter aircraft, not a sixth-generation one. It is planned to replace aging fleets and operate alongside platforms like the Tejas LCA.
- Statement 2 is incorrect. The aircraft is designed with a twin-engine configuration. This feature is intended to provide higher thrust, enhanced survivability, and the capability for supercruise and high manoeuvrability.
- Statement 3 is correct. One of the defining features

of fifth-generation fighters, and specifically mentioned for the AMCA project, is supercruise capability. This allows the aircraft to fly at supersonic speeds for extended periods without engaging its afterburners, which are highly fuel-intensive. This enhances its operational range, endurance, and combat effectiveness significantly.

### 56. Solution: c)

- Statement 1 is incorrect. The Blue Ports Initiative is a partnership between the Government of India and the Food and Agriculture Organization (FAO), not the World Bank. While it operates under the umbrella of PMMSY, the international partner is incorrectly identified.
- Statement 2 is incorrect. The initiative's focus is not exclusive to green infrastructure. It also incorporates smart technologies such as AI, data analytics, and remote sensing for efficient port management. Furthermore, it aims to enhance the entire value chain, including fish landing, processing, storage, and market linkage. The focus is broader than just "green infrastructure."
- Statement 3 is correct. Three pilot harbours chosen for establishing model fishing harbours under the Blue Ports Initiative: Vanakbara (Daman & Diu), Karaikal (Puducherry), and Jakhau (Gujarat).

### 57. Solution: b)

- Statement 1 is incorrect. The objective of the portal is to modernize, not replace, the traditional six-digit PIN Code system. It enhances the existing system by using geospatial technology and GNSS-based mapping to improve its accuracy and utility, but it does not propose replacing the numeric PINs with an alpha-numeric code.
- Statement 2 is correct. A key feature of this portal is the use of geo-fencing of PIN Codes. This involves digitally mapping the precise boundaries of India's postal codes (over 1.5 lakh of them) to significantly improve the accuracy of address-based services and logistics.
- Statement 3 is correct. In line with principles of transparency and public utility, the geo-referenced PIN Code data is available on the Open Government Data (OGD) Platform. This allows citizens, businesses, and developers to access and utilize the data for various applications.

### 58. Solution: c)

- Statement 1 is incorrect. The first UN peacekeeping mission, the United Nations Truce Supervision Organization (UNTSO), was established in 1948 in the Middle East, not Congo.
- Statement 2 is incorrect. While peacekeeping operations operate under the authority of the UN Security Council and can be mandated under Chapter VII (which allows for the use of force), not all missions are. Some operate under Chapter VI (peaceful settlement of disputes).
- Statement 3 is incorrect. India is the 4th largest

contributor of uniformed personnel, not the largest.

- Statement 4 is correct. Since 1948, more than 179 Indian peacekeepers have made the supreme sacrifice—the highest among all UN member states.

#### 59. Solution: c)

- Brigadier General Amitabh Jha (A) is stated to have served under the United Nations Disengagement Observer Force (UNDOF), which operates in the Golan Heights. Therefore, A matches with 2.
- Havildar Sanjay Singh (B) served under the United Nations Organization Stabilization Mission in the Congo (MONUSCO). Both he and Brig. Gen. Jha were posthumously awarded the Dag Hammarskjöld Medal. Therefore, B matches with 3.
- Major Radhika Sen (C) was honoured in 2023 as the UN Military Gender Advocate of the Year. This is a distinct recognition from the Dag Hammarskjöld Medal. Therefore, C matches with 1.

#### 60. Solution: a)

- Statement 1 is incorrect. The Department of Fisheries held a Technical Dialogue on this topic with the Agence Française de Développement (AFD), indicating international collaboration. Furthermore, the related Blue Ports Initiative involves the FAO.
- Statement 2 is correct. A major focus of the Eco-Fishing Ports is on Post-Harvest Efficiency. This includes the development of infrastructure for safe fish handling, cold storage, and maintaining hygienic practices. These measures are crucial for improving seafood quality, reducing wastage, and boosting export potential.
- Statement 3 is incorrect. The initiative explicitly promotes Social Inclusiveness. It encourages community participation, women empowerment, and the establishment of co-management societies for local governance.

#### 61. Solution: b)

- Statement 1 is incorrect. NITI Aayog replaced the Planning Commission, but a key difference is that NITI Aayog does not have powers to allocate funds; this role is now largely with the Finance Ministry. It is a policy think tank.
- Statement 2 is correct. The core function of NITI Aayog is to act as a policy think tank for the Government of India.
- Statement 3 is correct. NITI Aayog aims to foster cooperative federalism, bringing States together to align national development goals, as seen in the functions of its Governing Council.
- Statement 4 is incorrect. The approval of annual budgets of Central Ministries is the prerogative of the Parliament, with the Ministry of Finance playing a central role in its preparation and

presentation. NITI Aayog provides policy inputs but does not approve ministerial budgets.

#### 62. Solution: a)

- Statement 1 is incorrect. Being on the FATF 'Grey List' signifies that a jurisdiction is under increased monitoring and has committed to resolving strategic deficiencies. It leads to enhanced scrutiny but does not automatically trigger full-fledged financial sanctions or a complete cutoff from international markets. Those severe consequences are associated with the 'Black List'.
- Statement 2 is incorrect. The 'Black List' (High-Risk Jurisdictions) is for nations with severe and ongoing non-compliance. Minor strategic deficiencies, especially with a commitment to corrective actions, would more likely lead to a 'Grey List' placement. The 'Black List' is for more serious and persistent failures.
- Statement 3 is correct. Nations on the 'Grey List' face consequences such as reduction in foreign investment and credit rating, and loss of developmental aid from institutions like the IMF, World Bank, and ADB. This is due to the reputational damage and perceived higher risk associated with their financial systems.

#### 63. Solution: c)

- Statement 1 is correct. The Yamuna River originates from the Yamunotri Glacier in Uttarkashi, Uttarakhand. With a length of approximately 1,376 km, it is indeed the longest river in India that is a tributary and does not have a direct outlet to the sea, unlike the Ganga, Godavari, or Krishna.
- Statement 2 is correct. The Tons River is the largest tributary of the Yamuna. It contributes about 60% of the total discharge, which is more than half.
- Statement 3 is correct. The confluence of the Yamuna and the Ganga occurs at Prayagraj (formerly Allahabad). This sacred site is known as the Triveni Sangam, where the mythical Saraswati river is also believed to join them.

#### 64. Solution: c)

- While several bodies are involved in environmental governance, the response mechanism for oil spills is highly specific. The National Oil Spill Disaster Contingency Plan (NOS-DCP) is the key guiding document for such emergencies in Indian waters.
- The plan clearly designates the Indian Coast Guard (ICG) as the central coordinating and nodal agency for oil spill response. The ICG is responsible for overall coordination of the response, including monitoring the spill, mobilizing resources, directing cleanup operations, and ensuring public safety.
- While the NDMA has a broader disaster management mandate and the MoEFCC sets environmental policy, the on-ground operational command during an oil spill at sea rests with the ICG.



- The Directorate General of Shipping is primarily concerned with regulating merchant shipping, including safety and pollution prevention standards, but is not the lead response agency.

**65. Solution: b)**

The term “agentic” refers to the capacity of AI systems to act as autonomous agents that can perform tasks, make decisions, and interact with each other and their environment. The Model Context Protocol (MCP) is a crucial component for enabling this vision.

The primary role of the MCP, as supported by the Gemini API and Vertex AI, is to create a standardized way for different AI agents to communicate and share context. This allows them to work together on complex tasks. For example, one agent might search for information, another might analyze it, and a third might summarize it, all while seamlessly passing information back and forth using the MCP. It is the protocol that allows the different “dolls” in the Matryoshka to interact intelligently.

**66. Solution: a)**

- Statement 1 is incorrect. Kuwait is not landlocked. It has a coastline on the Persian Gulf, which is a critical feature for its economy and geography, including the significant Kuwait Bay.
- Statement 2 is correct. Kuwait lacks natural freshwater sources and features only intermittent wadis. Consequently, it is highly dependent on desalination plants to meet its water needs, a common situation for many Gulf states.
- Statement 3 is incorrect. The demographic composition is the opposite of what is stated. Only about 30% of Kuwait’s population are citizens. The vast majority are expatriate workers, in addition to a significant population of stateless residents known as Bidoon.

**67. Solution: c)**

The paradox, a well-known concept in geography and fractal geometry, posits that a coastline does not have a single, definitive length. The measured length is contingent upon the scale of the measurement. If you measure a coastline with a kilometer-long ruler, you will get one length. If you use a meter-long ruler, you will have to account for more of the smaller curves and indentations, resulting in a longer total length. If you could use a centimeter-long ruler, the length would be even greater.

The recent update to India’s coastline is a practical demonstration of this. The older measurement used a coarse scale (1:4,500,000), effectively “stepping over” many smaller features. The new measurement uses a much finer scale (1:250,000) and advanced tools that capture intricate details like creeks and estuaries, thus yielding a significantly longer length. Therefore, the paradox illustrates that coastline length is relative to the measurement scale, not an absolute value. The new

measurement also used the high-water line, not the low-water line.

**68. Solution: c)**

The land uplift in South Africa, observed at a rate of approximately 2 mm per year, is primarily attributed to an isostatic or elastic rebound effect. This phenomenon occurs due to the significant reduction in the mass of surface and groundwater, largely resulting from prolonged droughts and water overuse.

The Earth’s crust is not entirely rigid; it behaves elastically under massive loads like ice sheets or large bodies of water. When this weight is removed, the crust slowly rebounds or “bounces back” to a higher elevation.

This is distinct from land subsidence, which is often a poro-elastic effect caused by the collapse of aquifer structures due to over-extraction of groundwater. The South African case, confirmed by GNSS and GRACE satellite data, directly correlates the loss of Total Water Storage (TWS) with the observed uplift, making it a classic example of crustal response to surface load changes rather than tectonic or volcanic activity.

**69 Solution: b)**

- Statement 1 is incorrect. The Bharat Forecasting System (BFS) was developed by scientists at the Indian Institute of Tropical Meteorology (IITM), Pune, which is an autonomous institution under the Ministry of Earth Sciences, not ISRO. It is a numerical weather prediction model, not a satellite-based system.
- Statement 2 is correct. BFS leverages the computational power of India’s supercomputer ‘Arka’ (11.77 PetaFLOPS) to process its high-resolution data. This capability allows it to generate highly localized forecasts, extending its reach to the micro-level, including individual villages and panchayats, which is crucial for agriculture and disaster management.

**70. Solution: b)**

- Statement 1 is incorrect. MARPOL (International Convention for the Prevention of Pollution from Ships) is an international convention by the International Maritime Organization (IMO), not a domestic Indian law. While India is a signatory and incorporates its provisions into national law (like the Merchant Shipping Act), MARPOL itself is an international treaty.
- Statement 2 is incorrect. The OPRC Convention (International Convention on Oil Pollution Preparedness, Response and Co-operation, 1990) is focused on facilitating global cooperation and establishing national response systems for oil spill incidents. The conventions that primarily deal with liability and compensation are the Civil Liability Convention (CLC) and the Fund Convention (IOPC Fund), not the OPRC.

- Statement 3 is correct. The Merchant Shipping Act, 1958 is the principal piece of domestic legislation in India that governs maritime activities. It includes specific parts and sections dedicated to the control of pollution, prevention of oil spills from ships, and penalties for violations within Indian waters, thereby providing the legal backbone for actions taken by agencies like the Indian Coast Guard.

#### 71. Solution: a)

- Statement 1 is incorrect. The Somali Current is a unique ocean current that seasonally reverses its direction. It flows clockwise at high speeds during the Southwest monsoon (summer) and weakens or reverses during the winter monsoon. It does not maintain a constant clockwise circulation.
- Statement 2 is correct. The Arabian Sea has several significant submarine features, including the Carlsberg Ridge, Murray Ridge, and the Indus submarine canyon and abyssal cone, the latter formed by sediments from the Indus River.
- Statement 3 is incorrect. The Arabian Sea generally has higher salinity compared to the Bay of Bengal. This is due to higher evaporation rates and lower freshwater influx from rivers in the Arabian Sea region, whereas the Bay of Bengal receives a massive discharge of freshwater from numerous large rivers like the Ganges, Brahmaputra, Mahanadi, etc.
- Statement 4 is incorrect. Upwelling near the Somali and Arabian coasts plays a crucial role in aiding nutrient cycling and is actually associated with the onset and strengthening of the Southwest monsoon, rather than inhibiting it. This cold, nutrient-rich upwelled water influences sea surface temperatures and atmospheric pressure gradients that drive the monsoon.



#### 72. Solution: b)

- Statement 1 is incorrect. While APO supports productivity enhancement, its core functions include policy advisory, capacity building (training, workshops, research), and supporting Centres of Excellence. It does not typically directly implement industrial projects with its own funding in the manner of a development bank executing infrastructure.
- Statement 2 is correct. A key objective and

function of the APO is to promote environmentally sustainable practices through its Green Productivity initiative. This highlights its commitment to sustainable development alongside productivity enhancement.

#### 73. Solution: c)

- The Keezhadi excavation has yielded crucial evidence of an ancient urban civilization in Tamil Nadu.
- Statement (a) is incorrect; Keezhadi findings point to a later, urban phase (Sangam Age), not Paleolithic.
- Statement (b) is incorrect; carbon dating (AMS) of charcoal shows urban habitation existed by 200 BCE, which is significantly earlier than the medieval period.
- Statement (c) is correct. The key findings that support the existence of an early urban settlement include the discovery of urban features such as brick structures, ring wells, various types of pottery (some with graffiti indicating literacy), beads, and water storage facilities. These, coupled with the carbon dating to around 200 BCE, strongly suggest a sophisticated urban life during the Sangam Age.
- Statement (d) is incorrect; the evidence points to permanent structures and organized urban living, not nomadic campsites. The findings from Keezhadi challenge older narratives and highlight a rich, indigenous urban development in southern India.

#### 74. Solution: b)

- Statement 1 is incorrect. While architectural integration reflecting local art and culture is a feature, the Amrit Bharat scheme places strong emphasis on enhancing passenger experience through improved infrastructure and amenities. This includes improved accessibility, waiting halls, executive lounges, toilets, lifts, escalators, free Wi-Fi, and digital information systems.
- Statement 2 is correct. A key objective of the scheme is to integrate stations into multimodal urban mobility hubs, ensuring seamless links with metro, bus terminals, and other city transport systems. This reflects a holistic approach to urban planning and transportation.
- Statement 3 is incorrect. The scheme is characterized by a long-term, phased vision for redeveloping and modernizing railway stations. It utilizes a Master Plan Approach, where development is carried out in phases based on future needs, indicating a strategic and sustainable approach rather than just quick upgrades.

#### 75. Solution: d)

- Statement 1 is incorrect. KRCL was structured as a joint venture model, with the Government of India (Ministry of Railways) holding 51% equity, and

significant participation from state governments: Maharashtra (22%), Karnataka (15%), Goa and Kerala (6% each). It was not a fully owned subsidiary with no state participation.

- Statement 2 is incorrect. The Konkan Railway acts as a lifeline for both passengers and freight. It significantly reduces travel time and enables economic integration, implying substantial freight movement, despite the challenging terrain.

#### 76. Solution: a)

- Statement 1 is incorrect. While Jarosite is common on Mars, it is also found on Earth in various environments such as arid regions, mine tailings, Antarctica ice cores, and acidic clay-rich environments like Kachchh (India).
- Statement 2 is incorrect. Jarosite is a hydrous sulfate mineral primarily composed of potassium, ferric iron ( $\text{Fe}^{3+}$ ), and sulfate, with the formula  $\text{KFe}_3(\text{SO}_4)_2(\text{OH})_6$ . It does not primarily consist of calcium, magnesium, and silicates.
- Statement 3 is correct. Indian scientists have discovered that Jarosite can act as a natural luminescent clock, recording geological events from the last 25,000 years. This period falls within “the last few millennia” in a broader geological sense, and the study specifically mentions its potential for dating events within this timeframe. This makes it a valuable tool for planetary dating.

#### 77. Solution: c)

- Statement (a) is incorrect. The WHO launched its global policy in 2018 with the aim to eliminate industrial trans fats by 2025, not 2030. Many countries have indeed implemented regulations.
- Statement (b) is incorrect. India’s policy, under FSSAI’s 2021 Regulations, has been effective since January 2022 (not 2023) and enforces a <2% trans-fat limit in oils and fats, aligning with WHO best practices, not a 5% limit.
- Statement (c) is correct. The WHO’s global target for the elimination of industrially produced trans fats is 2025. In line with this, India has implemented regulations effective January 2022, mandating a limit of less than 2% trans-fat in oils and fats.
- Statement (d) is incorrect. While Austria, Norway, Oman, and Singapore were recently recognized, this list includes Oman and Singapore (Asian countries), showing progress beyond just Western Europe. The statement is also an overgeneralization.

#### 78. Solution: d)

- Statement-I is incorrect. The agreement does involve the transfer of sovereignty of the Chagos Islands to Mauritius, but it is not an unconditional relinquishing of British strategic interests. The deal explicitly allows for the continued operation of the military base on Diego Garcia.

- Statement-II is correct. A key component of the UK–Mauritius Chagos Sovereignty Deal (2025) is a 99-year lease of Diego Garcia to the UK and US for continued military operations. This ensures that Western strategic interests are maintained even after the transfer of sovereignty.

#### 79. Solution: d)

- Statement 1 is incorrect: Mallakhamb is an ancient Indian sport, with traces dating back to Chandraketugarh pottery (1st–2nd century BCE) and epics like the Ramayana. The earliest literary mention is in the Manasollasa (12th century) by King Someshvara III, not the 19th century.
- Statement 2 is incorrect: Mallakhamb has different types. While Pole Mallakhamb is performed on a sheesham wood pole, there is also Rope Mallakhamb (performed on a hanging rope) and Hanging Mallakhamb (suspended from a height). So it’s not exclusive to a wooden pole.
- Statement 3 is incorrect: Mallakhamb was demonstrated at the Berlin 1936 Olympics, but it was not included as a competitive event. Its inclusion in the National Gymnastics Championships was in 1958, and it became a standalone sport in 1962. Thus, none of the statements are correct.

#### 80. Solution: a)

- Statement 1 is incorrect. The New Development Bank (NDB) was established by the BRICS nations (Brazil, Russia, India, China, South Africa), not the G7 nations. While it functions as an alternative to institutions like the World Bank and IMF, its founders are the BRICS countries.
- Statement 2 is incorrect. The presidency of the NDB rotates among BRICS member countries. It is “currently held by Dilma Rousseff (Brazil),” not permanently by China. While the headquarters are in Shanghai, China, this does not dictate permanent presidency.
- Statement 3 is correct. Membership is open to all UN member states, provided BRICS retain 55% minimum shareholding. This indicates the NDB’s intent to expand its membership base while ensuring the founding members maintain a significant stake.

#### 81. Solution: b)

- Statement 1 is incorrect. The Shirui Lily is endemic to a narrow altitudinal range in the Shirui Hills of Ukhrul District, Manipur, at an elevation of around 2,673 m. It is not found across the entire Himalayan range.
- Statement 2 is correct. The Shirui Lily, locally known as Kashong Timrawon, is deeply embedded in the culture of the Tangkhul Naga tribe. It is considered a spiritual and ecological emblem and is believed to be protected by the mythic deity Philava.



- Statement 3 is incorrect. The Shirui Lily is an endangered species. Its habitat is threatened by factors such as habitat loss, climate change, and the spread of invasive species.



#### 82. Solution: d)

- Statement 1 is incorrect. While the risk of prostate cancer increases sharply after age 50, and it is most common in older men, it does not exclusively affect men over 70, nor is it extremely rare before this age. Cases can and do occur in men in their 50s and 60s.
- Statement 2 is incorrect. The primary causes and risk factors for prostate cancer are not viral infections. Key risk factors include age, family history, genetics (e.g., BRCA1/2 mutations, Lynch syndrome), race (higher risk in men of African ancestry), and diet & lifestyle (high intake of red meat, fats, sedentary habits). Viral infections are not identified as a primary cause.
- Statement 3 is incorrect. Globally, prostate cancer is the 2nd most diagnosed cancer in men. While India has a rising incidence, particularly in urban areas, and it ranks among the top 10 cancers in men in the country (with 37,948 new cases and 18,386 deaths in 2022 according to GLOBOCAN), it does not have the highest global incidence or mortality rate. Many Western countries have higher incidence rates.

#### 83. Solution: a)

- Statement 1 is incorrect. Trachoma is a contagious bacterial eye disease caused by Chlamydia trachomatis. It is spread through direct contact with eye/nose discharge of infected persons, contaminated hands, clothes, bedding, and by flies. While it can lead to blindness if untreated, it primarily affects communities with poor hygiene and sanitation, with children being the main reservoir for transmission, not exclusively elderly populations, nor is it a genetic condition.
- Statement 2 is incorrect. India is the third country in the WHO South-East Asia Region (after Nepal and Myanmar) to eliminate trachoma as a public health problem. Globally, 21 countries have been

validated by WHO for eliminating it, including others like China, Iran, Morocco, etc., before India.

- Statement 3 is correct. In advanced stages of Trachoma, a condition called Trachomatous Trichiasis (TT) can develop. This is characterized by the inward turning of eyelashes, which then scrape against the cornea with every blink. This constant abrasion can lead to corneal opacity and eventually irreversible blindness. Women are noted to be up to four times more likely to be affected due to their caregiving roles.

#### 84. Solution: b)

- Depot Darpan Initiative aims to improve the infrastructure and operational performance of food grain depots under the Food Corporation of India (FCI) and Central Warehousing Corporation (CWC). It involves a digital self-assessment portal for performance tracking, composite ratings based on operations and infrastructure (60:40 ratio), IoT integration for real-time monitoring, and significant capital infusion for upgrades. So, 1 matches with C.
- Anna Mitra Initiative aims to empower field-level Public Distribution System (PDS) stakeholders such as Fair Price Shop (FPS) dealers, District Food and Supplies Officer (DFS) officers, and food inspectors through real-time data access. It is a mobile app providing stock details, sales reports, alerts, and enabling geo-tagged inspections. So, 2 matches with A.
- Anna Sahayata Initiative aims to provide advanced, accessible grievance redressal for Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY) beneficiaries. It utilizes WhatsApp, Interactive Voice Response System (IVRS), and Automatic Speech Recognition (ASR) for filing complaints, focusing on accessibility, speed, and multilingual reach. So, 3 matches with B.

#### 85. Solution: d)

- Statement-I is incorrect. OCI cardholders have parity with NRIs in several areas, such as the adoption of Indian children, admission in Indian educational institutions against NRI seats, and the purchase of non-agricultural properties. However, a key restriction is that OCI cardholders cannot buy agricultural or plantation property in India. This right is not extended to them.
- Statement-II is correct. The Overseas Citizen of India (OCI) scheme, introduced in August 2005 under Section 7A of the Citizenship Act, 1955, was indeed conceptualized with the objective of strengthening India's connections with its global diaspora. It achieves this by granting them a form of permanent residency, allowing them to live and

work in India indefinitely and bestowing multiple rights akin to those of long-term residents, although certain restrictions (like voting rights, holding constitutional posts, or buying agricultural land) apply.

**86. Solution: b)**

- Statement 1 is incorrect. The Golden Temple is uniquely built on a lower level compared to its surroundings. This architectural design is intentional and symbolizes humility and egalitarianism, core tenets of Sikhism. Worshippers must step down to enter, signifying the importance of shedding ego.
- Statement 2 is incorrect. The Golden Temple has four entrances, one on each side (North, South, East, West). These four entrances symbolize that the shrine is open to people from all castes, creeds, religions, and walks of life, signifying universal access and welcome.
- Statement 3 is correct. Baba Budha Ji, a revered figure in Sikh history, was appointed by Guru Arjan Dev Ji as the first granthi (reader or custodian of the Guru Granth Sahib) at the Harmandir Sahib (Golden Temple) after the Adi Granth was installed there in 1604.
- Statement 4 is correct. The Golden Temple has faced numerous desecrations and attacks throughout its history, particularly during 18th century, which saw repeated invasions by Mughal governors and Afghan rulers like Ahmad Shah Abdali. It was rebuilt multiple times by the Sikh community.

**87. Solution: a)**

- Statement 1 is incorrect. Mount Lewotobi Laki-laki is an active stratovolcano, not dormant. It is known for frequent eruptions, and it erupted multiple times recently, prompting a high alert. It is located on Southeast Flores Island, Indonesia, not Sumatra.
- Statement 2 is correct. Mount Lewotobi Laki-laki forms part of a twin volcanic system with Lewotobi Perempuan. These are often symbolized as a “husband-wife” pair, with Laki-laki (male) being the more active and Perempuan (female) being less active.
- Statement 3 is incorrect. The volcano is known for frequent eruptions, pyroclastic activity, and ash columns reaching over 5 km. This indicates explosive activity with significant ash production, not just slow lava flows with minimal ash.

**88. Solution: c)**

Banu Mushtaq, a distinguished Kannada author and activist, is the author of the short story collection “Heart Lamp.” This work, translated into English by Deepa Bhashti, was awarded the International Booker Prize in 2025. This achievement is notable as “Heart Lamp” is the first Kannada work to win this prestigious

international literary award. The International Booker Prize recognizes both the author and the translator for the finest translated work of fiction.

**89. Solution: c)**

- The concept of ‘full literacy’ for a state in India, as per the benchmark defined under the ULLAS (Understanding Lifelong Learning for All in Society) scheme, is achieved when its literacy rate exceeds 95%. Mizoram was declared India’s first fully literate state by achieving a literacy rate of 98.2% as per the PLFS 2023–24, surpassing this 95% threshold.
- The ULLAS scheme, launched for FY 2022–2027, is a centrally sponsored initiative by the Ministry of Education. It aims to promote inclusive adult education, targeting non-literates aged 15 and above, and focuses on foundational literacy and numeracy, critical life skills, basic education, vocational skills, and continuing education. This benchmark is crucial for evaluating the success of literacy programs and achieving national educational goals aligned with NEP 2020.

**90. Solution: a)**

- Statement 1 is incorrect. While Gir National Park is their primary habitat, the 16th census noted a notable range expansion beyond Gir forest, with stable sub-populations outside protected areas, covering 35,000 sq km across 11 districts.
- Statement 2 is correct. A distinguishing physical feature of Asiatic lions is a visible longitudinal fold of skin running along their belly (belly fold), which is less prominent or absent in African lions. Their mane is also generally less developed compared to their African counterparts.
- Statement 3 is incorrect. Asiatic lions live in small prides, which are generally lesser in size and complexity than the prides of African lions. This difference in social structure is a key behavioral distinction.
- Statement 4 is incorrect. The 16th Asiatic Lion Census was conducted in two phases: Phase 1 involved Direct Beat Verification, and Phase 2 was the Final Enumeration. This multi-phase approach ensures more accurate population estimation.

**91. Solution: c)**

The Miyawaki Technique, a method for creating dense and fast-growing forests, is innovative but comes with challenges:

- High Initial Costs: Preparing soil to support a variety of native species and ensuring proper planting techniques require significant investment. This makes Statement 1 correct.
- Difficulty in Degraded or Saline Lands: The technique thrives in areas with fertile soil. However, its implementation on saline or heavily degraded lands is challenging unless extensive

remediation measures are undertaken. This makes Statement 2 correct.

- **Incompatibility with Monoculture:** The Miyawaki Technique emphasizes biodiversity, requiring the planting of a mix of native species for ecological balance. This approach directly contrasts with monoculture practices, which focus on a single species. Thus, Statement 3 is correct.

## 92. Solution: c)

A disrupted polar vortex leads to several significant atmospheric phenomena:

- **Sudden Stratospheric Warming (SSW):** This phenomenon occurs when the polar vortex weakens due to a sudden increase in stratospheric temperatures. The warming disrupts the vortex's stability, often leading to its splitting or displacement. Statement 1 is correct.
- **Wavy Jet Stream Patterns:** A weakened polar vortex disrupts the normally stable jet stream, causing it to develop meandering or wavy patterns. This allows cold Arctic air to move southward and warm air to intrude into the Arctic, resulting in extreme weather events in mid-latitudes. Statement 2 is correct.
- **Enhanced Cyclogenesis in the Arctic Region:** The instability caused by a disrupted polar vortex increases cyclonic activity (cyclogenesis) in the Arctic. This leads to more frequent and intense storms in the region. Statement 3 is correct.

## 93. Solution: b)

Pulicat Lake and Nelapattu Bird Sanctuary provide significant ecological benefits:

- **Supporting Biodiversity:** Both sites are critical habitats for numerous bird species, including migratory birds like flamingos, pelicans, and storks, making them vital for maintaining biodiversity. Statement 1 is correct.
- **Natural Buffer Against Cyclones and Flooding:** Pulicat Lake, as a coastal wetland, acts as a buffer, reducing the impact of cyclones and mitigating coastal flooding by absorbing excess water. Statement 2 is correct.
- **Groundwater Recharge:** Brackish water systems like Pulicat Lake are not significant contributors to groundwater recharge due to the salinity of the water. Statement 3 is incorrect.

## 94. Solution: a)

The Polar Vortex is a large area of low-pressure, cold air surrounding the poles. Let's evaluate the given statements:

Statement 1 is Incorrect. The polar vortex is strongest in winter, not summer, because the temperature gradient between the poles and the equator is highest during winter. This strong gradient intensifies the polar jet stream, strengthening the vortex.

Statement 2 is Correct. When the polar vortex splits

or weakens, it can disrupt the jet stream, allowing frigid Arctic air to move southward into mid-latitudes, leading to colder winters in regions like North America and Europe.

Statement 3 is Correct. Although the polar vortex occurs in both hemispheres, its impact on weather is more pronounced in the Northern Hemisphere due to the presence of large landmasses and stronger interactions with the jet stream.

## 95. Solution: c)

The Blue Flag Certification is an eco-label awarded by the Foundation for Environmental Education (FEE) to beaches, marinas, and boating operators meeting strict environmental, safety, and educational criteria. Its primary benefits include:

- a) **Increased awareness among visitors about eco-friendly practices:** Educational activities and signage promote responsible behaviour, increasing awareness of environmental issues.
- b) **Enhanced environmental sustainability of local ecosystems:** Compliance with Blue Flag standards requires conservation measures, pollution control, and habitat protection, ensuring sustainable ecosystems.
- c) **Access to additional funding from the FEE for infrastructure development:** While the certification offers guidelines and recognition, it does not provide direct funding for infrastructure development. Governments or local authorities must allocate resources to meet and maintain the standards.
- d) **Improved international tourism potential:** The Blue Flag symbolizes cleanliness, safety, and sustainability, attracting international tourists and enhancing the beach's global appeal.

## 96. Solution: d)

The World Economic Forum (WEF) is a global organization fostering public-private collaboration to address international challenges.

Statement 1 is Correct. The WEF works closely with the UN to advance the 2030 Agenda for Sustainable Development through multi-stakeholder initiatives and innovative solutions.

Statement 2 is Correct. The WEF supports the G20 by providing insights, fostering dialogue, and facilitating public-private partnerships on pressing global economic and financial issues.

Statement 3 is Correct. The WEF collaborates with regional and national governments to implement tailored development initiatives, including digital transformation and environmental sustainability projects.

Statement 4 is Correct. The WEF partners with the private sector to develop strategies for managing cybersecurity risks and ensuring data security.

## 97. Solution: b)

Statement 1 (Incorrect): The Blue Flag certification is an eco-label awarded to environmentally sustainable



beaches and marinas, unrelated to animal welfare. AWBI is not involved in this.

Statement 2 (Correct): AWBI provides training programs for law enforcement agencies, such as the police, to ensure they understand and enforce laws related to preventing cruelty to animals. It also trains volunteers to support animal welfare initiatives.

Statement 3 (Incorrect): AWBI does not regulate the sale and purchase of exotic animals in India. Instead, it focuses on promoting animal welfare, advising the government, and ensuring the enforcement of animal protection laws.

#### 98. Solution: c)

The Genome India Project is a research initiative aimed at mapping the genetic diversity of India for health and medical research.

- Data privacy and secure storage of genetic information (Correct): Ensuring secure storage and privacy of sensitive genetic data is a key ethical focus of the project.
- Informed consent from participants (Correct): Participants are required to give informed consent to ensure their voluntary involvement and understanding of the research objectives.
- Commercialization of genetic data for global pharmaceutical companies (Incorrect): The project is focused on research and public benefit, not commercialization. Ethical guidelines emphasize the non-commercial use of genetic data.
- Non-discrimination in genetic research outcomes (Correct): The project aims to promote inclusivity

and prevent discrimination based on genetic information in research outcomes or applications.

#### 99. Solution: c)

Statement I (Correct): NOTTO maintains a centralized database for organ allocation and distribution to ensure transparency and fairness. It oversees the equitable distribution of organs to registered patients based on priority and medical criteria.

Statement II (Incorrect): While NOTTO plays a crucial role in organ transplant coordination, it does not directly regulate the legal and ethical aspects of transplantation surgeries. These aspects are governed by legal frameworks such as the Transplantation of Human Organs and Tissues Act (THOTA), 1994.

#### 100. Solution: a)

The Animal Welfare Board of India (AWBI) was established under the Prevention of Cruelty to Animals Act, 1960, making Statement 1 incorrect. It was not created under the Environment Protection Act, 1986.

The primary role of the AWBI is to oversee the implementation of the Prevention of Cruelty to Animals Act, 1960, ensuring compliance with its provisions and promoting animal welfare. This makes Statement 2 correct.

However, the AWBI does not have the authority to impose penalties on organizations or individuals for violations of animal welfare laws. Its role is largely advisory and regulatory, with enforcement powers lying with other authorities such as the police or judiciary. This makes Statement 3 incorrect.

