• THURSDAY, APRIL 16, 2026 •

VOL. 187

Daily News Analysis ePaper

THE PALA CIVIL TIMES

Civil Service Institute | Pala | Thiruvananthapuram | South India' Premier Civil Service Coaching Institute | www.civilservicepala.org

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Chambal Under Siege: Sand Mining, State Failure, and Biodiversity Loss

The Supreme Court of India on April 13, 2026 expressed shock at the impunity with which illegal sand mining has been carried out in the National Chambal Sanctuary, highlighted by the killing of a forest guard and unauthorised construction activity in this fragile zone. This underscores the grave nature of the issue, where ecological damage is accompanied by serious governance and law-and-order failures. The Chambal sanctuary, a critical riverine ecosystem, is home to endangered species such as the Gharial, Ganges river dolphin, and the Indian Skimmer, all of which depend on undisturbed sandy habitats for survival and breeding. Continued mining disrupts these ecosystems through habitat loss, altered river flow, and declining biodiversity. Therefore, it is imperative to bring sand mining under strict regulation to safeguard ecological integrity and ensure effective enforcement.

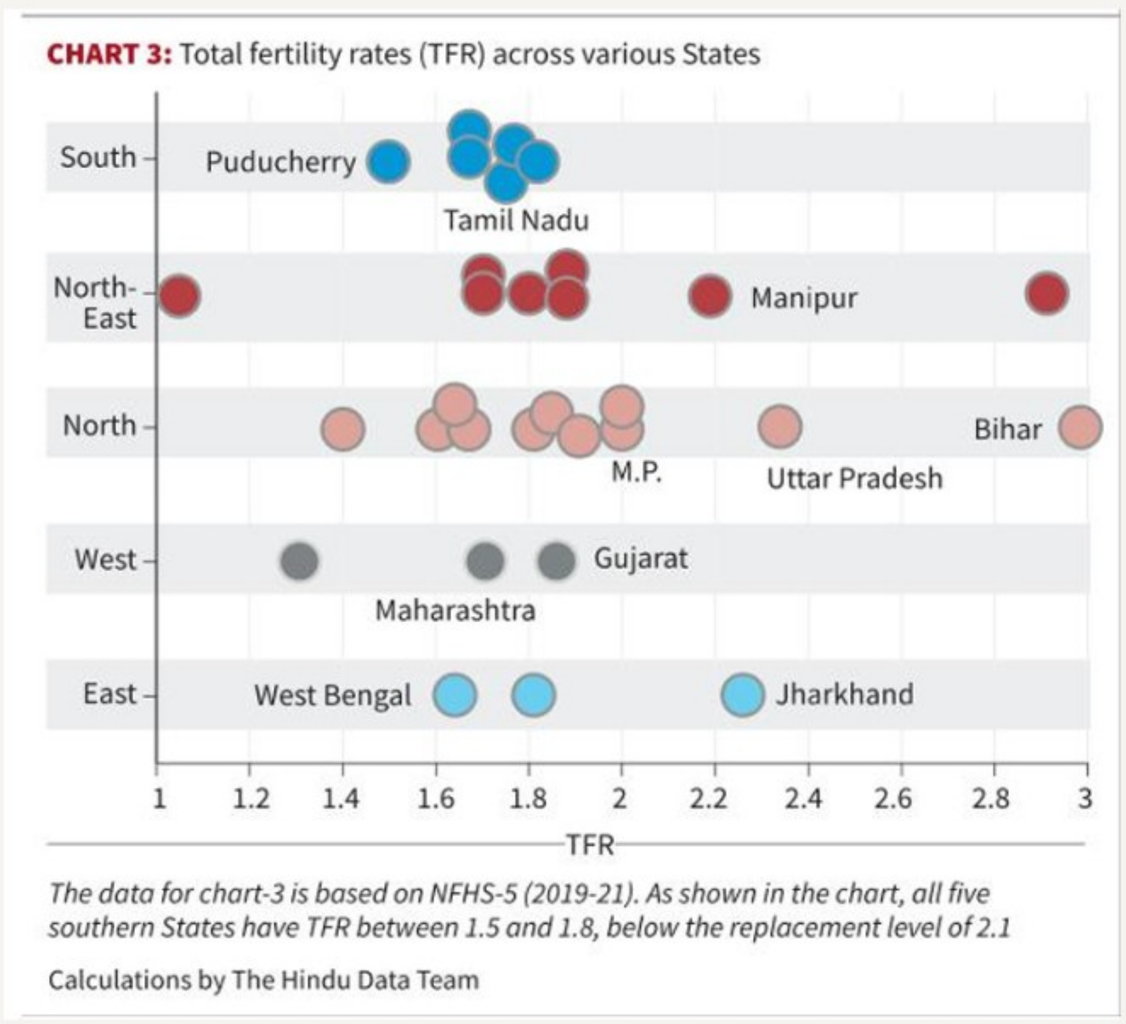
(Read the full report on page 4)

Women's Reservation and Delimitation

The proposed reforms revolve around three interlinked legislative measures: the Constitution (131st Amendment) Bill, the Delimitation Bill, 2026, and the third Bill which extends these provisions to the three Union Territories with legislatures: Delhi, J&K, and Puducherry.

Together, they aim to **expand the strength of the Lok Sabha, redraw constituency boundaries based on Census data, and operationalise one-third reservation for women in Parliament and State Assemblies**.

A key feature is that women's reservation is to be implemented only after a delimitation exercise, which itself will rely on the latest officially published Census—currently the 2011 Census. This creates a ***sequencing framework where representation reforms are contingent upon demographic and territorial restructuring.***



Constitutional and Institutional Dimensions

Delimitation in India is governed by Article 81 of the constitution, which mandates allocation of seats based on population. Historically, delimitation exercises have followed Census data. The current proposals introduce two notable institutional changes. First, they provide Parliament with flexibility to decide which Census data to use for delimitation. Second, they remove the earlier freeze (linked to population control concerns) and reopen the question of seat redistribution among States.

This marks a shift that potentially alters the balance between constitutional certainty and political flexibility.

Expansion of the Lok Sabha and Institutional Balance

The proposed increase in Lok Sabha strength from 543 to around 850 seats represents a significant structural transformation. While this may improve representational capacity by reducing the population-to-representative ratio, it also raises institutional concerns. An expanded Lok Sabha without a corresponding increase in the Rajya Sabha alters the balance between the two Houses. In mechanisms such as joint sittings, the numerical dominance of the Lok Sabha would increase, potentially reducing the revisory and federal role traditionally played by the Rajya Sabha.

Additionally, a larger House may affect the quality of deliberation. With limited sitting days and procedural constraints such as lotteries for questions and debates, individual members may find fewer opportunities for effective participation.

Federal Implications of Seat Redistribution

The use of population as the primary criterion for seat allocation has important federal consequences. States with higher population growth are likely to gain a larger share of seats, while those with lower growth may see a relative decline.

This raises a structural tension within Indian federalism: the principle of "one person, one vote" supports population-based representation, whereas the idea of balanced federalism seeks to ensure that all States retain meaningful influence in national decision-making.

The redistribution of seats could thus recalibrate political power across regions, influencing legislative priorities, coalition dynamics, and Centre-State relations.

TABLE 2: Region-wise increase in seats, and region-wise share of seats in the current composition and as per the proposed delimitation exercise

Region	% increase in seats	As a share of 543 seats	As a share of 850 seats
East	48.7%	14.4%	13.7%
Hindi-heartland	76.8%	38.1%	43.1%
North-East	33.3%	4.4%	3.8%
North-non-Hindi	58.3%	4.4%	4.5%
South	33.3%	24.3%	20.7%
West	56.4%	14.4%	14.3%
Grand total	56.5%	100%	100%

The South's share in the post-delimitation Parliament will fall from 24.3% to 20.7%, while the Hindi heartland's share will rise from 38.1% to 43.1%

Role of Census Data in Representation

Census data forms the empirical foundation of delimitation. Using older data (such as the 2011 Census) for future representation raises questions about the accuracy and fairness of seat allocation, especially given demographic changes over time.

Further, reservation of seats for Scheduled Castes (SCs) and Scheduled Tribes (STs) is also based on population proportions. Any mismatch between current population realities and the Census base used could affect the adequacy of representation for these groups.

Thus, the timing and choice of Census data have broader implications for social justice and inclusive representation.

Linkage Between Delimitation and Women's Reservation

The operationalisation of women's reservation is tied to the completion of delimitation. This linkage creates a dependency between two distinct reforms: gender-based political representation and territorial reorganisation.

From a governance perspective, such linkages can have both advantages and challenges. On one hand, synchronising reforms may ensure coherence in constituency design and reservation allocation. On the other, delays or complexities in one process (delimitation) can postpone the implementation of another (women's reservation). This raises questions about whether representation reforms should be pursued independently or as part of a broader structural overhaul.

Comparative and Procedural Considerations

International experience suggests that large legislatures can function effectively if supported by robust institutional mechanisms. These include frequent sittings, strong committee systems, and structured debate procedures.

In India, however, parliamentary functioning is constrained by relatively fewer sitting days and limited committee scrutiny of legislation. The proposed changes, given their scale and long-term implications, underscore the need for detailed examination through parliamentary committees and wider public consultation.

Broader Governance Implications

The combined effect of these reforms extends beyond electoral boundaries. They influence:

- Legislative efficiency and deliberation quality
- Federal balance and regional representation
- Social justice through reservation policies
- Executive-legislative relations (e.g., expanded Council of Ministers)
- Democratic legitimacy through participatory law-making

Given their far-reaching consequences, these reforms represent a critical moment in the evolution of India's representative democracy.

The proposed delimitation and women's reservation framework reflects an attempt to realign India's political representation with demographic realities while advancing gender inclusion. However, it also introduces complex trade-offs involving federal balance, institutional functioning, and procedural integrity.

A carefully sequenced, transparent, and consultative approach—grounded in constitutional principles and empirical data—is essential to ensure that these reforms strengthen, rather than strain, the foundations of democratic governance.

Chambal Under Siege: Sand Mining, State Failure, and Biodiversity Loss

Recent observations by the Supreme Court of India highlighting illegal sand mining in the National Chambal Sanctuary — including the killing of a forest guard — underline how unregulated extraction is not just an ecological crisis but also a serious governance and law-and-order failure


Indian Skimmer

Ecological and Geographical Significance

The Chambal National Sanctuary is a tri-state protected area spanning **Rajasthan, Madhya Pradesh, and Uttar Pradesh** along the Chambal River. Its unique landscape of ravines, sandy banks, and clean river systems provides ideal habitats for aquatic and semi-aquatic species, making it one of the **last intact riverine ecosystems** in northern India.


Gharial

Biodiversity Importance

The sanctuary serves as a critical habitat for endangered species such as the Gharial, Ganges river dolphin, and the Red-crowned roof turtle. It is also a key breeding ground for the Indian Skimmer, recently classified as endangered, with limited global distribution and declining population. The presence of diverse freshwater turtles and migratory birds further enhances its ecological value.

Threats to the Ecosystem

The sanctuary faces multiple threats, including water diversion, river interlinking, illegal sand mining, and human disturbances. Sand mining, in particular, disrupts riverine habitats by altering topography, degrading nesting sites, and destabilising sediment flow, thereby affecting breeding success of species like the Indian Skimmer.

Impact of Sand Mining on Biodiversity

Sand mining significantly alters ecosystems through changes in topography, hydrology, sediment flow, and chemical composition. It leads to habitat destruction, biodiversity loss, reduced water quality, and disruption of food chains. These impacts extend beyond immediate sites, affecting downstream ecosystems, increasing erosion, and threatening species survival, including endangered aquatic fauna.

Conservation Efforts and Community Participation

Initiatives such as the 'Guardians of the Skimmer' programme highlight the role of community-based conservation in protecting nesting sites and improving breeding success. Additionally, earlier efforts like Project Crocodile have contributed to the revival of endangered species through captive breeding and habitat protection.

Governance and Conservation Challenges

Despite its ecological importance, conservation efforts are hindered by weak regulation, inter-state coordination challenges, and continued anthropogenic pressures. Ensuring ecological flow, regulating sand mining, and strengthening community participation remain critical for sustainable conservation. The Chambal Sanctuary exemplifies the delicate balance between ecological conservation and developmental pressures. Protecting such riverine ecosystems requires integrated policy measures, strict regulation of extractive activities, and sustained community engagement to preserve biodiversity and ecological integrity.

The Indian EXPRESS

Making history needs more than tearing hurry

The proposed legislative package to implement one-third reservation for women and expand parliamentary and assembly seats, along with fresh delimitation, marks a significant reform initiative. While the move to operationalise women's representation has been broadly welcomed, concerns arise over the pace and manner of implementation. Retaining the 1971 population-based distribution aims to avoid regional imbalances, particularly between northern and southern States, while expanding seats may ease political resistance. However, questions remain regarding the use of outdated Census data for delimitation despite an ongoing Census.

The broader concern lies in undertaking such consequential reforms without adequate deliberation. Recent experiences, such as electoral roll revisions, highlight how procedural haste can affect inclusion, trust, and fairness. Delimitation will have long-term impacts on political representation and the implementation of women's reservation, making it essential to ensure transparency and consensus.

Editorial to Exam - Most probable question from this editorial

The proposed implementation of women's reservation alongside delimitation and expansion of legislative seats has significant implications for India's representative democracy.
Critically examine the challenges associated with delimitation in India and discuss the need for consensus and due process in undertaking such electoral reforms.

THE HINDU

Dry Days

India is likely to experience a below-normal monsoon in 2026, with the IMD forecasting an 8% rainfall deficit (with a margin of error). Historical patterns suggest that such early deficit warnings often correlate with actual drought conditions. The anticipated shortfall is linked to the possible **emergence of El Niño conditions**, which have frequently coincided with weaker monsoons. However, the impact of El Niño depends on its timing and intensity, and mitigating factors such as the **Indian Ocean Dipole** could offset adverse effects, as seen in past instances.

The potential rainfall deficit raises concerns for agriculture and rural livelihoods combined with disruptions in fertilizer and energy supplies due to global conflicts. These risks highlight the need for proactive policy measures such as adequate fertilizer availability, efficient water management in stressed reservoirs, and timely advisories to farmers on cropping strategies. The situation underscores the importance of preparedness and adaptive governance in managing climate variability and its economic implications.

Editorial to Exam - Most probable question from this editorial

A deficient monsoon can have wide-ranging impacts on agriculture and the economy.
Discuss the causes of below-normal monsoon in India and examine the measures required to mitigate its effects.

thehindu businessline.

TUESDAY - MARCH 31, 2026

SIP with caution

India's stock market correction amid the Iran war triggered a sharp decline in indices, but mutual fund data indicate continued resilience among retail investors. Equity fund inflows rose significantly in March 2026, with record contributions through Systematic Investment Plans (SIPs), suggesting that domestic investors have partially offset sustained foreign portfolio investor outflows. However, disaggregated trends reveal uneven investor behaviour, with disproportionate inflows into mid- and small-cap funds despite prevailing macroeconomic risks that favour relatively stable large-cap investments.

At the same time, rising SIP stoppages and declining new registrations indicate that less experienced investors may be reacting to market volatility, reflecting gaps in financial understanding. The imbalance between equity and debt fund participation further highlights concerns about inadequate diversification, partly due to tax disincentives. These trends underscore the need for improved investor awareness and guidance by the mutual fund industry to promote informed decision-making, appropriate risk allocation, and long-term financial stability.

Editorial to Exam - Most probable question from this editorial

Despite rising participation of domestic investors in capital markets, concerns remain regarding their investment behaviour.
Examine the role of financial literacy in ensuring stability and efficient functioning of India's mutual fund ecosystem.

'Memflation' drove PC sales in first quarter, says Gartner

Memflation, a term coined by Gartner, refers to the rapid rise in memory prices driven primarily by disproportionate demand from artificial intelligence (AI) infrastructure. Unlike a conventional demand boom, memflation reflects a structural supply imbalance where a significant share of memory production—particularly DRAM and NAND flash—is diverted toward AI-related applications, thereby inflating prices across the broader semiconductor ecosystem.

Nature of the Phenomenon: Supply Diversion, Not Demand Expansion

Memflation is fundamentally a supply-side distortion rather than a broad-based increase in demand. AI infrastructure investments, led by hyperscalers, are consuming a large portion of global semiconductor output, especially memory components. As a result, while global semiconductor revenues are projected to exceed $1.3 trillion in 2026, this growth is uneven and concentrated. The expansion is driven less by widespread consumption and more by price inflation and supply reallocation, leaving non-AI sectors constrained.

Immediate Market Effects: Artificial Growth and Price Surge

The impact of memflation is already visible in downstream markets. For instance, global PC shipments grew by about 4% in early 2026, but this increase was largely artificial, driven by inventory build-up ahead of expected price hikes rather than genuine consumer demand. **Memory revenues are projected to nearly triple, with DRAM prices rising by around 125% and NAND flash prices by over 200%.** This has led to increased costs for manufacturers and delayed shipments, with a majority of supply chain partners reporting disruptions.

Sectoral Impact: Uneven Gains and Losses

The benefits of memflation are concentrated among firms aligned with AI infrastructure. Companies like NVIDIA, which dominate AI chip production, have gained significantly, even surpassing traditional leaders such as Samsung in semiconductor revenue. Similarly, firms like Micron Technology are experiencing growth due to rising data centre demand. In contrast, sectors such as consumer electronics, automotive, and non-AI enterprise computing are facing higher input costs and constrained supply, limiting their growth.

Supply Chain Distortions and Industry Imbalance

Memflation has intensified supply chain stress by creating competition for limited resources. Over 70% of distributors have reported price increases, while more than 90% have experienced shipment delays. The dominance of AI-related demand—accounting for roughly 30% of total semiconductor revenue—means that the remaining sectors must compete for a shrinking share of supply at inflated prices. This has led to a bifurcation of the market, where AI-linked industries expand while others stagnate or contract.

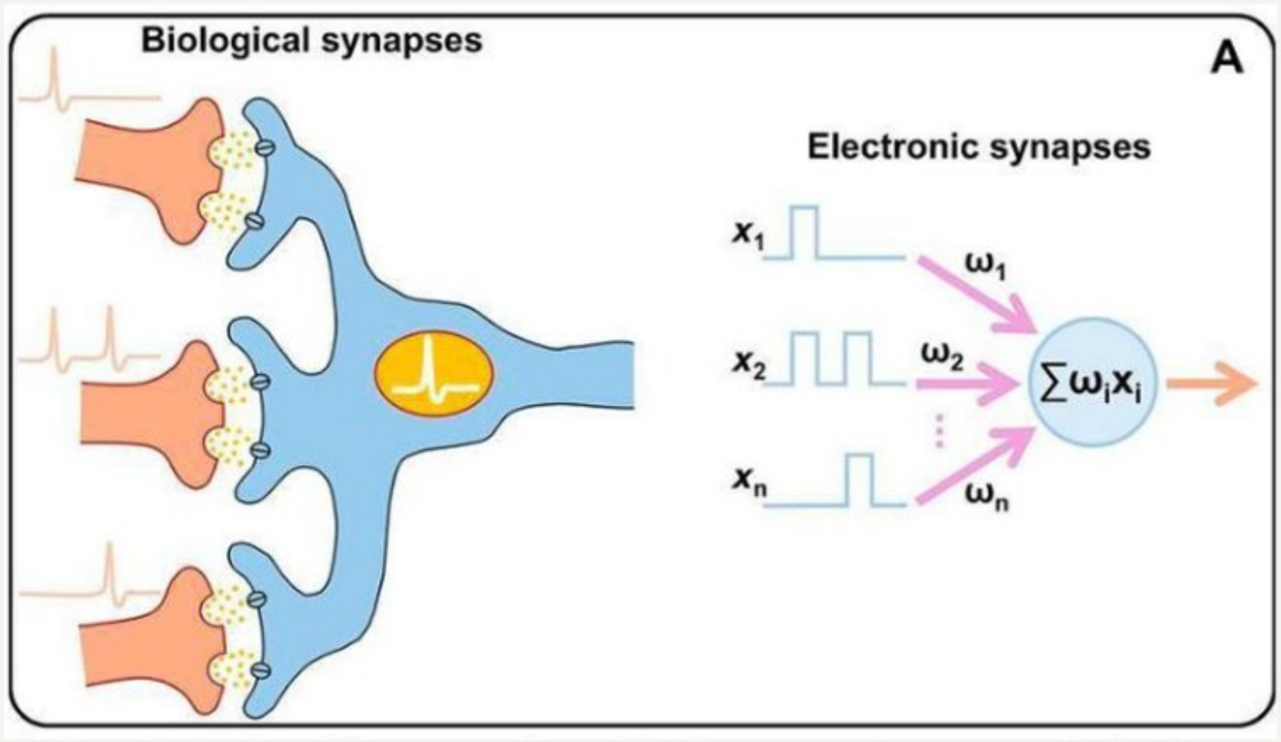
Strategic Implications for Firms and Policymakers

The current environment poses significant challenges for procurement and strategic planning. Enterprises risk locking themselves into long-term supply agreements at peak prices, which may become unfavorable once the market stabilises. Experts caution against extending such contracts beyond 2027, as pricing pressures are expected to moderate over time. Policymakers and firms must therefore balance short-term supply security with long-term cost efficiency.

Although memflation is expected to persist in the near term, it is not considered a permanent feature of the market. Price pressures may begin to ease by late 2026, with more substantial correction anticipated by 2027–28. However, the episode highlights deeper structural shifts, including the growing centrality of AI in shaping industrial demand and the vulnerability of global supply chains to sector-specific shocks. The key challenge ahead lies in managing this transition in a way that sustains innovation without undermining broader market stability.

New brain-inspired 'memristors' promise to reduce AI energy use

Researchers at University of Cambridge have developed a novel hafnium-oxide memristor that could significantly reduce the energy consumption of artificial intelligence (AI). The innovation addresses a core limitation of conventional computing systems by combining memory and processing within a single device, inspired by how the human brain functions.



The Problem with Conventional Computing Architecture

Most modern computers follow the von Neumann architecture, where memory (such as DRAM) and processors (like GPUs) are physically separate. This requires constant data transfer between the two, which consumes more energy than the computation itself, especially in AI workloads involving large datasets and distributed systems.

Brain-Inspired Solution: Neuromorphic Computing

In contrast, the human brain integrates memory and processing within synapses, enabling highly energy-efficient operations. This idea underpins neuromorphic computing, which seeks to replicate such efficiency in electronic systems by designing devices that mimic neurons and synapses.

What is a Memristor?

A memristor—short for "memory resistor"—is a special electronic component that can both store data and process it. Unlike a traditional resistor, which offers fixed resistance, a memristor has variable resistance and can "remember" its previous state even after power is turned off. This means it can act like a synapse, where different resistance levels represent varying strengths of connections, enabling computation directly where data is stored.

How the New Memristor Works

The Cambridge team developed a memristor using hafnium oxide, where resistance is controlled through a p-n junction acting as an adjustable electronic gate. By applying low-voltage pulses, the device can smoothly change resistance levels, making it more stable and predictable than earlier designs that relied on fragile conductive filaments.

Key Advantages: Efficiency and Performance

This new memristor requires significantly less current—up to a million times lower—to switch between states, leading to an estimated 70% reduction in energy use for AI tasks. It also demonstrates brain-like properties such as linear response and adaptive learning behavior, making it suitable for neuromorphic systems. Additionally, its compatibility with existing semiconductor materials improves its scalability.

Challenges and Limitations

Despite its promise, the technology faces manufacturing challenges, particularly high fabrication temperatures that are not yet compatible with standard industrial processes. Moreover, current neuromorphic systems are still far from matching the complexity of the human brain.

The development of memristors marks a crucial step toward more efficient, brain-inspired computing. By merging memory and computation, these devices could transform AI hardware, reducing energy demands while enabling more advanced and scalable systems in the future.

PRELIMS CORNER :

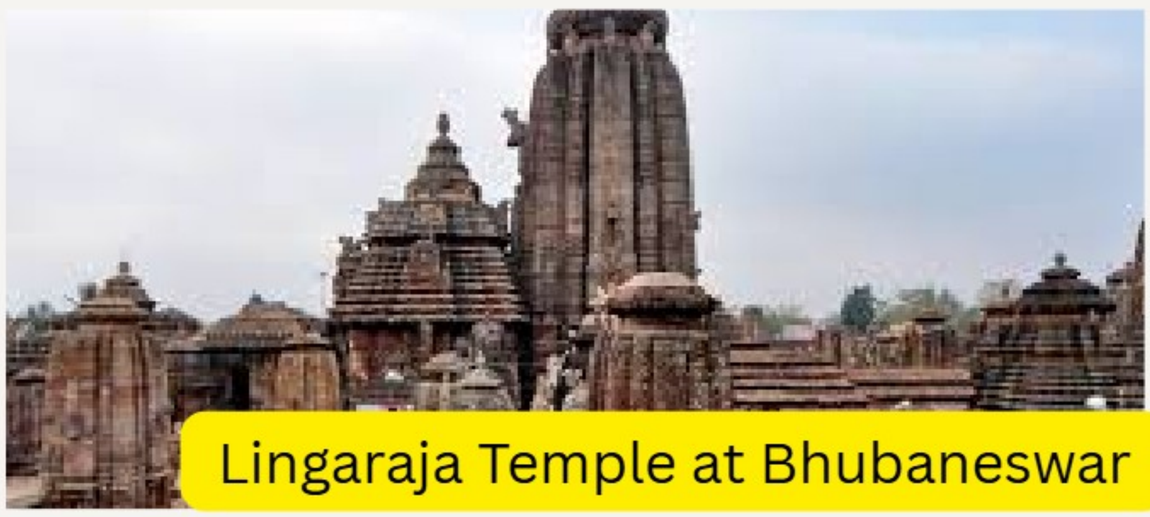
1) With reference to the art and archaeological history of India, which one among the following was made the earliest? (2015)

(a) Lingaraja Temple at Bhubaneswar

(b) Rock-cut Elephant at Dhauli

(c) Rock-cut Monuments at Mahabalipuram

(d) Varaha Image at Udayagiri



Lingaraja Temple at Bhubaneswar

Rock-cut Elephant at Dhauli

Rock-cut Monuments at Mahabalipuram

Varaha Image at Udayagiri

"The changes in our life must come from the impossibility to live otherwise than according to the demands of our conscience not from our mental resolution to try a new form of life"

- Leo Tolstoy

UPSC Foundation Puzzle Set

Think Like a Civil Servant

School students, step into the world of learning —challenge your mind with fun puzzles and begin your journey toward thinking like a future civil servant.

1) The earliest Vedic text is:
a) Ramayana
b) Rigveda
c) Samaveda
d) Atharvaveda

2)The Great Bath is located at:
a) Lothal
b) Dholavira
c) Mohenjo-daro
d) Kalibangan

3)The famous Sanchi Stupa was built by:
a) Harsha
b) Ashoka
c) Kanishka
d) Samudragupta

Answers : 1)b 2)c 3)b

Prelims Corner: Explanations

1) Answer is option b

1. Rock-cut Elephant at Dhauli

Period: Maurya Period, 3rd century BCE
Location: Dhauli, near Bhubaneswar, Odisha.
Historical Significance:

The Rock-cut Elephant at Dhauli is associated with Emperor Ashoka, the Maurya ruler who converted to Buddhism after the Kalinga War (circa 261 BCE). Dhauli is an important site in the history of Indian art and archaeology because it contains inscriptions of Ashoka's Edicts. These edicts are inscribed on the rocks and pillars and are among the earliest examples of writing in India. The Elephant Sculpture is one of the early examples of rock-cut art in India. The elephant, carved on a rock face, is believed to represent Ashoka's military prowess, but also symbolizes his later transformation into a Buddhist patron. ○ The style and execution of the rock-cut elephant reflect early Mauryan art, which is known for its simplicity and powerful expression.

2. **Lingaraja Temple at Bhubaneswar**
Period: 11th century CE

Location: Bhubaneswar, Odisha
Architectural Style: Kalinga Style Historical Significance: The Lingaraja Temple is one of the most famous Hindu temples dedicated to Lord Shiva and represents the peak of Kalinga (Odisha) architecture. Built during the reign of King Jajati Keshari, this temple's construction began in the 11th century CE and was completed by the 12th century. The Lingaraja Temple is known for its majestic height, intricate carvings, and its large central deity, Lord Shiva, symbolized by a linga (phallic symbol). It features a Panchayatana style of temple architecture with a central shrine and four smaller shrines around it, a hallmark of later temple building in the region.

3. Rock-cut Monuments at Mahabalipuram
Period: Pallava Dynasty, 7th century CE
Location: Mahabalipuram (Tamil Nadu)
Historical Significance: The Rock-cut Monuments at Mahabalipuram, also known as Mamallapuram, were created during the Pallava dynasty (circa 7th century CE) under the reign of King Narasimhavarman I (Mamalla). These monuments are famous for their rock-cut temples, monolithic Rathas (chariots), and intricate bas-reliefs, including the famous Descent of the Ganga (also called Arjuna's Penance). The Pallava rock-cut architecture is distinguished by its highly detailed carvings and the development of free-standing monolithic structures.

4. Varaha Image at Udayagiri

Period: Gupta Period, 4th-5th century CE
Location: Udayagiri Caves, Odisha
Historical Significance: The Varaha Image at Udayagiri depicts Vishnu in his Varaha (boar) incarnation, where he rescues Earth (personified as the goddess Bhudevi) from the chaotic waters. The Udayagiri Caves near Bhubaneswar were carved during the Gupta period, around the 4th-5th century CE. The sculpture is a masterpiece of Gupta art and represents one of the early depictions of Vishnu's avatars in Indian art. The Udayagiri caves contain several other important inscriptions and sculptures, many of which are significant in the context of Hindu iconography.