

DAILY CURRENT AFFAIRS

By



SOURCES



Date: 20 Jan. 2024

Important News Articles

1. Andhra becomes 2nd State to take up 'caste census' - The Hindu
2. Centre forms committee to examine steps to safeguard interests of SCs - Indian Express
3. Airbus and CSIR-IIP to collaborate on producing sustainable aviation fuel - The Hindu
4. Japan becomes 5th country to land on Moon - Indian Express
5. Scientists map largest deep sea coral reef found till date in Atlantic off US - Indian Express
6. Chandrayaan-3 lander on the moon successfully pinged by orbiting NASA spacecraft using laser - The Hindu

Editorials, Gists and Explainers

1. The Capex Push - Indian Express
2. The problem with India's science management - The Hindu
3. A green blueprint - Indian Express
4. Nagara style of temple architecture, in which Ram temple is being built - Indian Express

Quick Look

1. The Great Indian Bustard
2. Jagannath Temple
3. Antimicrobial Resistance (AMR)
4. Khelo India Scheme
5. Guruvayoor Sree Krishna Swamy Temple

Important News Articles

GS II

1. Andhra becomes 2nd State to take up 'caste census' - The Hindu

Relevance: Welfare schemes for vulnerable sections of the population by the Centre and States and the performance of these schemes; mechanisms, laws, institutions and Bodies constituted for the protection and betterment of these vulnerable sections.

Prelims Takeaway

- SECC
- Census

News:

- The Andhra Pradesh government **kicked off its comprehensive caste census** to enumerate all communities in the state.

Key Highlights

- Andhra Pradesh becomes the **second state after Bihar** to take up the caste census.
- The YSRCP government has set the caste census as a major goal and feels that the enumeration can transform the living standards of people.
- As part of this exercise, the **Andhra Pradesh government elicited opinions from caste representatives across the state.**
- **Aiming to conduct the caste census** in a fair and comprehensive manner, the southern state wants to project its enumeration exercise as a role model across the country.
- Though the caste census was initially announced to cover only the **139 Backward Classes (BC) communities**, its scope now includes all castes in Andhra Pradesh.

Census in India

- The origin of the Census in India dates back to the **colonial exercise of 1881.**
- Census is used by the government, policymakers, academics, and others to capture the Indian population, access resources, map social change, and conduct delimitation exercises.
- However, it has been criticised as a **blunt instrument unsuited for specialised inquiry.**

SECC (Socio-Economic and Caste Census)

- **SECC was first conducted in 1931** which aimed to collect information on the economic status of Indian families, both in rural and urban areas, to identify indicators of deprivation.
- It also collects data on specific caste names to evaluate the economic conditions of different caste groups.

2. Centre forms committee to examine steps to safeguard interests of SCs - Indian Express

Relevance: Welfare schemes for vulnerable sections of the population by the Centre and States and the performance of these schemes; mechanisms, laws, institutions and Bodies constituted for the protection and betterment of these vulnerable sections.

Prelims Takeaway

- Madigas
- Sub-categorisation of SCs

News:

- **A high-level panel has been formed to examine** the administrative steps that can be taken to safeguard the interests of scheduled caste communities like the Madigas,

Key Highlights

- The panel will seek to **ensure fair allocation of benefits** to the most disadvantaged communities within the Scheduled Castes
 - which have been overshadowed by comparatively affluent and influential groups.

- It will examine the **administrative steps that can be taken to safeguard** the interests of the scheduled caste communities, like the Madigas and other such groups
 - who have represented that they are not evenly getting their due share of benefits.
- The **committee will comprise**
 - secretaries of the Ministry of Home Affairs
 - the Department of Personnel and Training
 - the Ministry of Tribal Affairs
 - the Department of Legal Affairs
 - the Department of Social Justice and Empowerment.
- The government has been in receipt of representations from state governments, including Andhra Pradesh, Telangana and Karnataka for the sub-categorisation of SCs
 - which includes the Madiga community, on the grounds that the benefits of reservation and welfare/developmental schemes are not percolating evenly among them.
- The matter has been placed before various courts of law and is at present under consideration of a seven-judge SC bench.

GS III

3. Airbus and CSIR-IIP to collaborate on producing sustainable aviation fuel - The Hindu

Relevance: Achievements of Indians in science & technology; indigenization of technology and developing new technology.

News:

- Airbus and the **CSIR-Indian Institute of Petroleum (CSIR-IIP)** have signed an MoU to develop **new technologies** and to test and qualify indigenous sustainable aviation fuel (SAF) in the country.

Prelims Takeaway

- Sustainable Aviation Fuel
- CSIR

Key Highlights

- The collaboration will address the Indian aerospace industry's decarbonisation ambitions by supporting SAF production and commercialisation
 - using a **new HEFA technology pathway** and locally sourced feedstocks.
- The entities will jointly work on technical assessment, approvals, market access and sustainability accreditation efforts for the production of SAF.
- SAF, including one developed by **CSIR-IIP**, will act as the measure with the biggest impact on the industry's decarbonisation effort
- All Airbus aircraft are certified to fly on 50% **SAF blend, while the goal is to achieve 100% SAF compatibility by 2030.**
- While CSIR-IIP will study fuel properties under the new pathway and the impact on aircraft systems and the environment

Sustainable Aviation Fuel (SAF)

- It is also referred to as bio-jet fuel, and is **created using domestically developed methods using cooking oil and oil-rich seeds from plants.**
- The SAF samples produced by the institutes are undergoing strict **testing at the US Federal Aviation Administration Clearinghouse** to meet the standards required for the ASTM D4054 certification from ASTM International.
- The CSIR-IIP has created fuel using different materials, such as non-edible and edible oils, as well as used cooking oil.
- They used various sources, including **palm stearin, sapium oil, palm fatty acid distillates, algae oil, karanja, and jatropa.**

4. Japan becomes 5th country to land on Moon - Indian Express

Relevance: Awareness in the fields of IT, Space, Computers, robotics, nano-technology, bio-technology and issues relating to intellectual property rights.

Prelims Takeaway

- SLIM
- JAXA

News:

- **Japan's Smart Lander for Investigating Moon (SLIM) successfully landed on the moon**, becoming the fifth country to achieve this feat.
- The mission aimed to demonstrate precision landing technology and revitalize Japan's space program.

Landing and Solar Power Issues

- **Recently, SLIM landed on the moon** and re-established communication with Earth.
- However, **its solar panels were unable to generate electricity**, possibly due to incorrect angling.
- The spacecraft is currently operating on its battery, with a limited lifespan of a few hours.

Japan's Space Aspirations

- Japan seeks a larger role in space, **partnering with the U.S. against China**.
- JAXA aims to **send an astronaut to the moon** as part of NASA's Artemis program.
- Recent setbacks in rocket development, including a launch failure, have caused delays in space missions.

Previous Lunar Exploration Challenges

- **JAXA has faced challenges with lunar missions** due to the moon's gravity, making it difficult for landers to attempt a second landing.
- Three lunar missions by other entities have failed in the past year.

SLIM's Features

- The SLIM spacecraft is equipped with two main engines, 12 thrusters, solar cells, antennas, radar, and cameras, maintaining a lightweight design for cost-effective launches.
- It **successfully deployed mini-probes** upon landing.

Collaborative Development

- Tech giant Sony Group, toymaker Tomy, and Japanese universities jointly developed the robots deployed by SLIM.

5. Scientists map largest deep sea coral reef found till date in Atlantic off US - Indian Express

Relevance: Conservation, environmental pollution and degradation, environmental impact assessment.

News:

- Scientists have **mapped the largest coral reef deep in the ocean**, stretching hundreds of miles off the US Atlantic coast.

Prelims Takeaway

- Deep coral reefs
- Great Barrier Reef

Key Highlights

- While researchers have known since the 1960s that some coral were present off the Atlantic
 - The reef's size remained a mystery until new underwater mapping technology made it possible to construct 3D images of the ocean floor.
- The **reef extends for about 310 miles** (499 kilometres) from Florida to South Carolina and at some points reaches 68 miles (109 kilometres) wide.
- The total area is nearly **three times the size of Yellowstone National Park**.
- The reef was found at depths ranging from 655 feet to 3,280 feet (200 meters to 1,000 meters), where sunlight doesn't penetrate.

- Unlike tropical coral reefs, where photosynthesis is important for growth, **coral this far down must filter food particles out of the water for energy.**
- **Deep coral reefs provide habitat** for sharks, swordfish, sea stars, octopus, shrimp and many other kinds of fish, the scientists said.
- Tropical reefs are better known to scientists — and **snorkelers**—because they're more accessible.
- The world's largest tropical coral reef system, the Great Barrier Reef in Australia, stretches for about 1,430 miles (2,301 kilometres).
- Maps of the ocean floor are created using **high-resolution sonar devices carried on ships.**
- Deep reefs cover more of the ocean floor than tropical reefs.
- Both kinds of habitat are susceptible to similar risks, including **climate change and disturbance from oil and gas drilling**

6. Chandrayaan-3 lander on the moon successfully pinged by orbiting NASA spacecraft using laser - The Hindu

Relevance: Awareness in the fields of IT, Space, Computers, robotics, nano-technology, bio-technology and issues relating to intellectual property rights.

News:

- **NASA's Lunar Reconnaissance Orbiter (LRO)** successfully transmitted and reflected laser beams between itself and India's Chandrayaan-3 lander on the moon.
- **Objective:** To precisely locate targets on the lunar surface, opening possibilities for future missions.

Prelims Takeaway

- NASA's Lunar Reconnaissance Orbiter (LRO)
- Chandrayaan 3
- Laser Retroreflector Array (LRA)

NASA's Laser Experiment

- NASA LRO's laser altimeter instrument sent laser pulses toward Vikram lander of Chandrayaan-3.
- After detecting light bounced back from a retroreflector on Vikram lander, NASA confirmed the success of the experiment.
- The technique involves **sending laser pulses towards an object and measuring the time it takes for light to bounce back**, commonly used for **tracking Earth-orbiting satellites.**

Future Improvements and Applications

- NASA aims to improve the technique to make it routine for missions using retroreflectors in the future.
- The techniques need to be refined for broader applications.

International Cooperation

- **NASA's Laser Retroreflector Array (LRA)** was accommodated on the Vikram lander under **international collaboration between NASA and ISRO.**
- It comprises **eight corner-cube retroreflectors** on a hemispherical support structure designed to last for decades on the lunar surface.
- While several LRAs have been deployed on the moon, the LRA on Chandrayaan-3 is a **miniature version** and is the **only one available near the south pole.**

Significance

- NASA's LRA on Chandrayaan-3 will serve as a **long-term geodetic station and location marker**, aiding in precise determination of the spacecraft's orbital position.
- It will contribute to **refining the lunar geodetic frame, providing insights into the moon's dynamics, internal structure, and gravitational anomalies.**
- The success of the laser experiment marks progress in collaboration between NASA and ISRO, contributing to lunar exploration and future missions.

Editorials, Gists and Explainers

7. The Capex Push - Indian Express

Relevance: Parliament and State legislatures—structure, functioning, conduct of business, powers & privileges and issues arising out of these.

Context:

- The Indian state governments have shifted towards **fiscal consolidation** after facing deficits due to the Covid-19 pandemic.
- The **aggregate fiscal deficit** of state governments in 2021-22 and 2022-23 was **below 3% of GDP** despite increased borrowing space provided by the Union government.

Shift in Spending Priority (2023-24)	Forces Driving Capital Expenditure
<ul style="list-style-type: none"> • States, which collectively spend more than the central government, have historically focused on revenue expenditure. • In 2023-24, there is a shift towards allocating more funds for capital expenditure, marking a departure from recent trends. • States' capital outlay increased by 45.7%, and revenue expenditure grew by 9.3% during April-November 2023. • The quality of expenditure, measured by the ratio of capital outlay to total expenditure, is at an eight-year high of 14.1%, indicating a focus on growth-enhancing investments. 	<ul style="list-style-type: none"> • The advance release of monthly tax devolution and timely fund disbursements for the special scheme on capital assistance contribute to increased capital expenditure. • States' own tax revenues and non-tax revenues have grown at 11.5% and 19.5%, respectively, during the first eight months of the fiscal year. <ul style="list-style-type: none"> ◦ The efficiency of tax administration and increased formalisation of the economy is reflected in the faster growth of own tax revenues compared to nominal GDP. • Mining industry revenue, a significant part of the state's own non-tax revenues, has benefited from reforms such as e-auction of mining leases, etc. <p>Challenges</p> <ul style="list-style-type: none"> • Overall revenue receipts have grown at a slower pace (5.5%) due to a 29.2% decline in grants from the Union government. • States are hence resorting more to market borrowings, reaching a record Rs 5.8 trillion during the first nine months, but largely utilised for capex. • Achieving the aggregate fiscal deficit target of 3.1% of GDP might be challenging, with a possible slippage of 20-30 basis points.

8. The problem with India's science management - The Hindu

Relevance: Government policies and interventions for development in various sectors and issues arising out of their design and implementation.

Context:

- India aims for sustained economic progress driven by scientific advances translated into deployable technologies.
- Government initiatives include setting up the **National Research Foundation (NRF)** and **restructuring the DRDO** to overhaul India's science establishment.

Challenges in Current Science Administration

- Low overall expenditure on research and development (around 0.7% of GDP) constrains scientific outcomes.
- Lack of focus on critical themes like genomics, robotics and artificial intelligence.
- India's science is dominated by the public sector, leading to generic bureaucratic issues and challenges in long-term funding commitment for critical projects.

Administrative Challenges for Scientists

- **Individuality vs. Organisation:** Scientists driven by individual attribution may struggle with organisational-driven administration.
- **Skill Set Mismatch:** Attributes associated with good scientists may not align with administrative requirements such as tact, realism, flexibility, and firmness.
- **Conflict of Interest:** Being an academic within the same institution where one has administrative control can lead to conflicts of interest.
- **Lack of Training:** Scientists lack comprehensive training in selecting appropriate metrics and prioritising between time, cost, and precision.

Roots of the Problem

- Historical factors, such as concentration of high-end equipment in specific institutions, led to a system of gatekeepers.
- They began to capture positions, government patronage and institutional power on the back of their monopoly over critical equipment.
- Inherent system of paying tributes to gatekeepers, created a network that stifles competition and genuine scientific outcomes.

Proposal for Administrative Reform

- A separation of administrators and scientists is crucial, similar to the US model, where science administrators are selected and trained separately.
- Creation of an all-India pool of a science administration central service for training and selection is recommended.
- The need for administrative training should be recognised, similar to the establishment of the MBA course in business.

9. A green blueprint - Indian Express

Relevance: Government policies and interventions for development in various sectors and issues arising out of their design and implementation.

Context:

- The COP 28 in 2023 highlighted **global concerns over air pollution and climate change**, particularly noticeable due to thick smog in Dubai.
- India too faces **severe air quality challenges**, prompting the need for a comprehensive approach.

Current State of Air Quality Management

- The National Clean Air Action Plan (NCAP) launched in 2019 to tackle the increasing air pollution problem has shown mixed results.
- Air pollution and climate change are closely related as both share common emission sources—emphasising the urgency to address both issues simultaneously.

The Need for an Indigenous Air Quality Resource Framework

- India must develop a science-based, credible air quality resource framework to aid decision-makers.
- The framework should integrate emission sources with precise knowledge of airsheds.
 - Airshed refers to an area where local topography and meteorology limit the dispersion of pollutants.
- Air quality forecasts combined with health advisories and mitigation strategies should be developed for short, medium and long terms to help local, state, and national governments.

Baseline Levels and Emission Inventories

- NIAS researchers recently determined the first experimentally derived baseline levels of major air pollutants in different climatic zones.
 - Baseline levels refer to the ambient air pollution naturally present, without any anthropogenic sources of emission.
- These include PM10, PM2.5, NO₂, ozone, CO, and SO₂.

Technological Innovations and Data Standardization

- Emission inventories, crucial for forecasting, are lacking in India, highlighting a major shortcoming.
- This stems from a lack of accurate data and inadequate monitoring networks.
- Ground-based data, satellite-driven data, and new techniques, including drone-based artificial intelligence, have been proposed for forecasting.
- The use of "CubeSats - a class of nano- and microsatellites" is also suggested for enhanced data collection.
- Standardisation of data collection methodology, reporting protocols and emission inventory databases is crucial.

Proposal for an Integrated Approach

Challenges and Considerations

- India's diverse micro-environments and climatic conditions require understanding of various natural and scientific processes.
- Air quality management in India must address rural, urban and industrial areas, going beyond current urban-focused efforts.
- Critical input parameters for the development of an air quality early warning framework include emission inventories and air-shed mapping.
- A consortium of domain experts, health scientists, policy specialists, and communicators is needed to steer air quality issues.
- The consortium would provide scientific recommendations, frame communication strategies, issue alerts and plan mitigation strategies.
- Centralised emissions dataset as per international norms and robust application of data from Indian satellites is also crucial.

10. Nagara style of temple architecture, in which Ram temple is being built - Indian Express

Relevance: Indian culture will cover the salient aspects of Art Forms, literature and Architecture from ancient to modern times.

Context:

- The **Ram temple in Ayodhya** is set to be inaugurated on January 22.
- Chandrakant Sompura and his son Ashish have designed the temple complex in the **Nagara style of temple architecture**.

Nagara Style Temple Architecture

- Emerged in the fifth century CE during the late Gupta period in northern India.
- It is one of the two classical 'styles' of temple architecture, the other being Dravida style of southern India.

Distinguished Features of Nagara Temples

- Nagara temples are raised on a plinth, with the garbhagriha - houses the idol of the deity - as the most sacred part.
- The towering shikhara, resembling a mountain peak, is a prominent feature, representing the natural and cosmological order in Hindu tradition.
- It also comprises a circumambulatory passage around the garbhagriha and mandapas (halls), often adorned with murals and reliefs.

Five Modes of Nagara Architecture

- Depending on period and geography, Nagara temple architecture has five modes viz. Valabhi, Phamsana, Latina, Shekhari and Bhumija.
- **Early Nagara Style: Valabhi and Phamsana**
 - The Valabhi mode initiates as a masonry interpretation of the barrel-roofed (wooden) structure found in chaitya halls associated with Buddhist shrines.
 - Phamsana, an evolution from Valabhi, involves the formalisation of multi-eave towers through the piling up of slabs.
- **Supremacy of Latina in Nagara Architecture**
 - Latina emerges as a distinctive shikhara with a single, slightly curved tower having four equal sides.
 - Originating in the Gupta heartland, it achieved curvature by the early seventh century and dominated Nagara temple architecture for three centuries.
- **Composite Latinas and Emergence of Shekhari and Bhumija Styles**
 - From the tenth century onwards, composite Latinas gave rise to new styles viz. Shekhari and Bhumija.
 - Shekhari style features attached sub-spires or spirelets, echoing the main shape and varying in size.
 - Bhumija style incorporates miniature spires in horizontal and vertical rows, creating a grid-like effect on each face, with the shikhara approaching a pyramidal shape.
- Immense variation exists within each mode, showcasing the creativity and diversity of temple architecture.
- Temples may incorporate multiple shikharas on a simple structure, with the tallest typically positioned above the garbhagriha.

Comparison to Dravida Style

- In Dravida style, the counterpart to Nagara's shikhara is the vimana, typically smaller than the gopurams.
- Unlike Nagara, Dravida temples often have boundary walls called gopurams (great gatehouses), a distinct feature not commonly seen in Nagara style.

Ayodhya's Ram Temple: A Hybrid Structure

- Ayodhya's Ram temple exhibits "hybrid" features, such as a 732m long boundary wall, a departure from traditional Nagara style.
- While no elaborate gopuram is present, the temple showcases a blend of Nagara and unique elements.

Quick Look

1. The Great Indian Bustard

- It is considered the flagship grassland species, representing the health of the grassland ecology.
- Its population is confined mostly to Rajasthan (State Bird) and Gujarat.
- Small populations occur in Maharashtra, Karnataka and Andhra Pradesh.
- Threats: Collision/electrocution with power transmission lines, hunting (still prevalent in Pakistan), habitat loss and alteration as a result of widespread agricultural expansion, etc.
- Measures taken to protect GIB
 - It is kept under the species recovery programme under the Integrated Development of Wildlife Habitats of the Ministry of Environment, Forests and Climate Change (MoEFCC).
 - MoEF&CC, Rajasthan government and Wildlife Institute of India (WII) have established a conservation breeding facility in Desert National Park at Jaisalmer in June 2019.
 - Project Great Indian Bustard has been launched by the Rajasthan government with an aim of constructing breeding enclosures for the species and developing infrastructure to reduce human pressure on its habitats.
- Protection Status
 - IUCN: Critically Endangered
 - Convention on Migratory Species (CMS): Appendix I
 - Wildlife (Protection) Act, 1972: Schedule I

2. Jagannath Temple

- Recently, the Chief Minister of Odisha unveiled a sprawling heritage corridor around the Jagannath Temple in Puri.
- Located in Puri, Odisha, it is one of the most famous and sacred Hindu temples in the world.
- It is dedicated to Lord Jagannath, a form of the Hindu deity Vishnu.
- It is believed to have been built during the reign of King Anantavarman Chodaganga Deva, of the Eastern Ganga dynasty, in the 12th century.
- The Jagannath Temple is a striking example of Kalinga architecture, a distinct style prevalent in the Odisha region.
- The temple's main structure, the sanctum sanctorum (garbhagriha) houses the idols of Lord Jagannath, Balabhadra and Subhadra.
- Ratha Yatra is a Hindu festival associated with Lord Jagannath held at Puri in Odisha.
- The most famous Rath Yatra festival begins on the second day of the bright half of the lunar month of Ashadha (June–July) and lasts for nine days.

3. Antimicrobial Resistance (AMR)

- It occurs when bacteria, viruses, fungi and parasites change over time and no longer respond to medicines.
- As a result, antibiotics and other antimicrobial medicines become ineffective and infections become increasingly difficult or impossible to treat.
- It is estimated that bacterial AMR was directly responsible for 1.27 million global deaths in 2019 and 4,95 million deaths were associated with drug resistant infections.
- With antimicrobial resistance on the rise, the Union Health Ministry has urged doctors to write down the exact reason when prescribing antibiotics.
- The Director General of Health Services has also appealed to all pharmacists to strictly implement schedule H and H1 of the Drugs and Cosmetics Rules
 - Antibiotics are included in the list of drugs specified under Schedule H; to be sold by retail on the prescription of a Registered Medical Practitioner (RMP) only.
 - Some high-end antibiotics are included in the list of H1 drugs.

4. Khelo India Scheme

- It is being implemented by the Ministry of Youth Affairs and Sports through its five verticals which promote sports in the entire country including the rural areas.
- Khelo India is the basic platform to showcase sporting skills at the national level.
- Under the 'Talent Search and Development' vertical of this scheme, Khelo India Athletes are identified, selected, and provided annual financial assistance of Rs 6.28 lakh per annum per athlete.
- The Ministry organizes national-level multisport competitions, namely, Khelo India Youth Games, Khelo India University Games and Khelo India Winter Games.
- TOPS (Target Olympic Podium Scheme) is another flagship program of the Ministry of Youth Affairs and Sports which is an attempt to provide assistance to India's top athletes.

5. Guruvayoor Sree Krishna Swamy Temple

- It is also known as the Dwarka of the South, is dedicated to Lord Vishnu and the young form of Lord Krishna.
- It is located in the small town of Guruvayur, in the Thrissur District of Kerala.
- The earliest temple records date back to the 17th century, but other literary texts and legends indicate that the temple may be around 5000 years old.
- Lord Krishna, or Guruvayoorappan, is the chief deity of this temple.
- The temple is built in the traditional Kerala architectural style.
- The central shrine is believed to have been rebuilt in 1638 C.E.
- Structures like the Nalambalam (temple structure surrounding the sanctum sanctorum), Balikkal (sacrificial stone), and Deepasthambham (pillar of lights) are situated on the temple premises.
- The wall of the sanctum sanctorum is decked with ancient 17th-century murals.



Mentorship
India

Prelims Track Question

Q1. Consider the following statements regarding the caste census in India:

1. The last caste census conducted in India was in the year 1931.
2. The demand for a new caste census has gained momentum in recent times, with proponents arguing that it is essential for effective policy formulation and social justice.
3. The responsibility for conducting the census lies solely with the Registrar General and Census Commissioner of India.

How many of the statements given above is/are correct?

- A. Only one
- B. Only two
- C. All three
- D. None

Q.2 Consider the following statements regarding the sub-categorization of Scheduled Castes (SCs) in India:

1. Sub-categorization aims to ensure equitable distribution of benefits among different castes within the SC category.
2. The Constitution (One Hundred and Twenty-Seventh Amendment) Bill, 2021, addresses the issue of sub-categorization by providing for the establishment of a commission for this purpose.
3. The sub-categorization is solely based on the economic criteria and not on any other social or educational factors.

How many of the statements given above is/are correct?

- A. Only one
- B. Only two
- C. All three
- D. None

Q3. Consider the following statements regarding the use of indigenous sustainable aviation fuel (SAF) in India:

1. Indigenous Sustainable Aviation Fuel is produced from renewable resources such as plant biomass and waste.
2. The promotion of SAF is a part of India's strategy to reduce the carbon footprint in the aviation sector and achieve sustainability goals.

3. The government has introduced policies and incentives to encourage research, development, and production of Indigenous Sustainable Aviation Fuel.
4. Indigenous SAF is currently the primary fuel used in commercial aviation, replacing traditional fossil fuels completely.

How many of the statements given above is/are correct?

- A. Only one
- B. Only two
- C. Only three
- D. All four

Q4. Consider the following statements regarding the Smart Lander for Investigating Moon (SLIM):

1. SLIM is a lunar exploration mission designed to study the Moon's surface and geology.
2. SLIM is a collaborative mission between ISRO (Indian Space Research Organisation) and NASA (National Aeronautics and Space Administration).
3. The primary objective of SLIM is to search for signs of past or present lunar water.

How many of the statements given above is/are correct?

- A. Only one
- B. Only two
- C. All three
- D. None

Q.5 Consider the following statements regarding deep-sea coral reefs:

1. Deep-sea coral reefs are exclusively found in warm tropical waters.
2. These coral reefs are primarily composed of the same species of corals as shallow-water reefs.
3. Deep-sea coral reefs are not affected by human activities and climate change due to their depth.
4. The biodiversity associated with deep-sea coral reefs is of significant ecological importance.

How many of the statements given above is/are correct?

- A. Only one
- B. Only two

- C. Only three
D. All four

Q6. With reference to the recent NASA experiment involving the Lunar Reconnaissance Orbiter (LRO) and India's Chandrayaan-3 lander, consider the following statements

1. The Laser Retroreflector Array (LRA) Instrument on Chandrayaan-3's Vikram lander is the only retroreflector array available near the south pole of the moon.
2. The LRA on Chandrayaan-3 will contribute to providing insights into the moon's dynamics, internal structure, and gravitational anomalies.

Which of the statements given above is/are correct?

- A. Only 1
B. Only 2
C. Both 1 and 2
D. Neither 1 nor 2

Q7. Consider the following

1. Appreciation of the currency
2. Increase in the debt burden
3. Healthy Economy
4. Inflation

How many of the outcomes mentioned above can result from a high fiscal deficit?

- A. Only one
B. Only two
C. Only three
D. All four

Q8. Consider the following statements

1. The government's overall expenditure on research and development is around 2% of GDP.
2. The National Research Foundation (NRF) intends to facilitate research in India's universities by funding research infrastructure and researchers.

Which of the statements given above is/are incorrect?

- A. Only 1
B. Only 2
C. Both 1 and 2
D. Neither 1 nor 2

Q9. Consider the following initiatives

1. Green Credit Initiative
2. Leadership Group for Industry Transition (LeadIT 2.0)
3. Global River Cities Alliance (GRCA)
4. Global Goal on Adaptation (GGA)

How many of the initiatives mentioned above were led by India in the recently concluded COP 28?

- A. Only one
B. Only two
C. Only three
D. All four

Q10. Consider the following statements with reference to the Nagara Style of temple architecture

1. It emerged in the fifth century CE during the late Gupta period in northern India.
2. The unique characteristics of this style are elaborate boundary walls or gateways.
3. The garbhagriha houses the idol of the deity and is always located directly under the tallest shikhara.

How many of the statements given above is/are correct?

- A. Only one
B. Only two
C. All three
D. None

Prelims Track Answer

Answer 1 Option C is correct

Explanation

- The last caste census conducted in India was indeed in the year 1931. **Hence, statement 1 is correct**
- Subsequent censuses, including the most recent ones, have not included detailed data on castes. The absence of recent caste-based data has been a point of contention and debate in India.
- The demand for a new caste census has gained momentum in recent times.
- Proponents argue that a comprehensive caste census is crucial for formulating targeted policies and ensuring effective implementation of affirmative action programs.
- Accurate data on the socio-economic and educational status of different caste groups is seen as essential for addressing social inequalities and providing better representation. **Hence, statement 2 is correct**
- The responsibility for conducting the census lies with the Registrar General and Census Commissioner of India.
- However, decisions on whether to include caste as a category in the census are typically made at the government and policy levels. The actual conduct of the census involves a complex interplay of administrative, political, and social considerations. **Hence, statement 3 is correct**

Answer 2 Option C is correct

Explanation

- Sub-categorization of SCs is introduced to address the variations within the SC community. The objective is to ensure that the benefits of reservation reach all sub-groups more effectively, promoting social justice. **Hence, statement 1 is correct**
- By identifying specific castes or groups within the SC category and allocating quotas accordingly, the aim is to address the relative deprivation and upliftment of those who have historically been marginalized even within the larger SC community.
- The Constitution (One Hundred and Twenty-Seventh Amendment) Bill, 2021, indeed addresses the issue of sub-categorization.

- The bill proposes the establishment of a commission to examine the sub-categorization of the existing list of Scheduled Castes.
- The commission will recommend the grouping of SCs into sub-groups and the inter-se distribution of reserved seats among these sub-groups. **Hence, statement 2 is correct**
- While economic criteria may be considered in sub-categorization, it is not the sole basis. Social, educational, and other relevant factors are also taken into account.
- The purpose is to ensure a comprehensive approach that addresses the multifaceted nature of the disadvantages faced by different sub-groups within the SC category. **Hence, statement 3 is correct**

Answer 3 Option C is correct

Explanation

- Indigenous Sustainable Aviation Fuel is indeed produced from renewable resources such as plant biomass, agricultural residues, and waste materials.
- The production process is designed to be more sustainable and environmentally friendly compared to conventional aviation fuels derived from fossil sources. **Hence, statement 1 is correct**
- The promotion of Sustainable Aviation Fuel is a crucial part of India's strategy to reduce the carbon footprint in the aviation sector.
- By incorporating SAF, the aviation industry aims to lower greenhouse gas emissions and contribute to overall sustainability goals, aligning with global efforts to combat climate change. **Hence, statement 2 is correct**
- The government has introduced policies and incentives to encourage research, development, and production of Indigenous Sustainable Aviation Fuel.
- These initiatives are aimed at supporting the aviation industry's transition towards more sustainable practices and reducing dependence on conventional fossil fuels. **Hence, statement 3 is correct**
- Indigenous SAF is not currently the primary fuel used in commercial aviation. While there are efforts to increase its usage, the complete replacement of traditional fossil fuels has not been achieved.

- The aviation industry is gradually adopting SAF, and research is ongoing to improve its availability and cost-effectiveness. **Hence, statement 4 is incorrect**

Answer 4 Option A is correct

Explanation

- SLIM is a lunar exploration mission designed to study the Moon's surface and geology.
- It aims to enhance our understanding of the Moon's geological features, composition, and other relevant aspects.
- The mission is equipped with instruments to investigate the lunar surface in detail. **Hence, statement 1 is correct**
- There is no collaboration between ISRO and NASA for the SLIM mission.
- SLIM is a Japanese mission led by JAXA (Japan Aerospace Exploration Agency). **Hence, statement 2 is incorrect**
- The primary objective of SLIM is not specifically to search for signs of past or present lunar water.
- Instead, its focus is on studying the Moon's surface and geology. However, missions with water exploration objectives have been conducted separately, such as NASA's Lunar Water Ice Challenge.
- Again, it is crucial to verify the latest information for any updates or changes in mission objectives. **Hence, statement 3 is incorrect**

Answer 5 Option C is correct

Explanation

- Deep-sea coral reefs are not exclusively found in warm tropical waters.
- They can be found in various oceanic regions, including cold-water environments. Some deep-sea corals thrive in the colder waters of the Arctic and Antarctic regions. **Hence, statement 1 is incorrect**
- While deep-sea coral reefs share some common coral species with shallow-water reefs, they also consist of different species that are adapted to the specific conditions of the deep ocean.
- Deep-sea corals often have unique adaptations to survive in the cold, dark, and high-pressure environment of the deep sea. **Hence, statement 2 is correct**
- deep-sea coral reefs are indeed affected by human activities and climate change.
- Activities such as deep-sea trawling and mining, as well as climate-induced changes

in ocean temperature and acidity, can impact these ecosystems.

- Conservation efforts are underway to address these threats and protect deep-sea coral reefs. **Hence, statement 3 is correct**
- The biodiversity associated with deep-sea coral reefs is of significant ecological importance.
- These ecosystems provide habitat and refuge for various marine species, including fish and invertebrates.
- The conservation of deep-sea coral reefs is crucial for maintaining overall marine biodiversity. **Hence, statement 4 is correct**

Answer 6 Option C is correct

Explanation

- NASA's Lunar Reconnaissance Orbiter (LRO) successfully transmitted and reflected laser beams between itself and India's Chandrayaan-3 lander on the moon.
- Objective: To precisely locate targets on the lunar surface, opening possibilities for future missions.
- NASA's Laser Retroreflector Array (LRA) was accommodated on the Vikram lander under international collaboration between NASA and ISRO.
- While several LRAs have been deployed on the moon, the LRA on Chandrayaan-3 is a miniature version and is the only one available near the south pole. **Hence, statement 1 is correct.**
- NASA's LRA on Chandrayaan-3 will serve as a long-term geodetic station and location marker, aiding in precise determination of the spacecraft's orbital position.
- It will contribute to refining the lunar geodetic frame, providing insights into the moon's dynamics, internal structure, and gravitational anomalies. **Hence, statement 2 is correct.**

Answer 7 Option B is correct

Explanation

- Fiscal deficit is the difference between the government's total expenditure and its total revenue (excluding borrowings).
- It is an indicator of the extent to which the government must borrow in order to finance its operations and is expressed as a percentage of the country's Gross Domestic Product (GDP).

- A high fiscal deficit can lead to inflation, devaluation of the currency and an increase in the debt burden.
- While a lower fiscal deficit is seen as a positive sign of fiscal discipline and a healthy economy. **Hence, option B is correct.**

Answer 8 Option A is correct

Explanation

- National Research Foundation (NRF) will replace the Science and Engineering Research Board of India (SERB).
- Objective: To act as a coordinating agency between researchers, various government bodies and industry, thus bringing industry into the mainstream of research.
- It plans to seed, grow and facilitate research in India's universities, especially State universities, by funding research infrastructure and researchers. **Hence, statement 2 is correct.**
- Current low overall expenditure on research and development (around 0.7% of GDP) constrains scientific outcomes. **Hence, statement 1 is incorrect.**

Answer 9 Option B is correct

Explanation

- Global River Cities Alliance (GRCA) was launched at COP 28, led by the National Mission for Clean Ganga (NMCG) under the Ministry of Jal Shakti, Government of India. It highlights India's role in sustainable river-centric development and climate resilience.
- At COP 28, the Indian PM launched the Green Credit Initiative, which has been conceptualized as a mechanism to incentivize voluntary pro-planet actions, as an effective response to the challenge of climate change. **Hence, option B is correct.**

- Leadership Group for Industry Transition (LeadIT 2.0): It will focus on inclusive and just industry transition, co-development and transfer of low-carbon technology, and financial support to emerging economies for industry transition.
- Global Goal on Adaptation (GGA): It focuses on enhancing adaptive capabilities, and minimizing vulnerability for sustainable development.

Answer 10 Option B is correct

Explanation

- The Nagara Style of temple architecture emerged in the fifth century CE during the late Gupta period in northern India. **Hence, statement 1 is correct.**
- It is one of the two classical 'styles' of temple architecture, the other being Dravida style of southern India.
- Nagara temples are raised on a plinth, with the garbhagriha - houses the idol of the deity - as the most sacred part. **Hence, statement 3 is correct.**
- The towering shikhara, resembling a mountain peak, is a prominent feature, representing the natural and cosmological order in Hindu tradition.
- There are many subdivisions of nagara temples depending on the shape of the shikhara.
- It also comprises a circumambulatory passage around the garbhagriha and mandapas (halls), often adorned with murals and reliefs.
- Further, unlike in South India it does not usually have elaborate boundary walls or gateways. **Hence, statement 2 is incorrect.**

Mentorship India

Our mission is crystal clear – to provide the finest UPSC mentorship and guidance available in India. We recognize that the path to success in the UPSC examination is both demanding and multifaceted. This is precisely why we have developed a comprehensive approach that goes beyond conventional coaching. Our commitment lies in fostering excellence by equipping aspirants with the necessary tools, knowledge, and unwavering support to not only excel in the examination but also in life itself.

Mentorship India represents more than just an organization; it is a community of ambitious individuals bound together by the shared objective of conquering the UPSC examination. We warmly invite you to embark on this transformative journey alongside us. Whether you are a novice taking your initial steps or a seasoned aspirant aiming for the pinnacle, Mentorship India is your dependable companion in the relentless pursuit of excellence.

+91 9999 057869
www.mentorshipindia.com

A-92, Third Floor, Hari Nagar
Delhi - 110064

 @mentorship.india