



**UPSC
Mentorship**
A Unit of Mentorship India

DAILY CURRENT AFFAIRS

3rd July 2024



SOURCES



Table of Contents

1. Abhaya mudra, a Buddhist & Hindu cultural symbol conveying freedom from fear.....	2
2. Advanced Medium Combat Aircraft prototype expected by 2028-29.....	5
3. PLI Scheme to Boost the Recycling of Critical Minerals in India.....	7
4. Improving Rural Connectivity.....	10
5. Zinc's role in making legumes resilient to climate change.....	13
6. Project Nexus.....	14
6. Colombo Process.....	15
7. Santhal Hul.....	15
Daily Quiz.....	17
Solutions.....	20



GS I

1. Abhaya mudra, a Buddhist & Hindu cultural symbol conveying freedom from fear

Source: IE

Context: In his first speech as the Leader of the Opposition in Lok Sabha, Rahul Gandhi referred to the abhaya mudra, a gesture with a raised open palm that symbolizes reassurance and freedom from fear. He said that the abhaya mudra was a common thread in the depictions of Lord Shiva, Guru Nanak, and Jesus Christ, and also figured in Islam, Buddhism, and Jainism.

Mudras

- Mudras are a non-verbal mode of communication and self-expression, consisting of hand gestures and finger postures.
- They are symbolic sign-based finger patterns taking the place, but retaining the efficacy of the spoken word, and are used to evoke in the mind ideas symbolizing divine powers or the deities themselves.
- The composition of a mudra is based on certain movements of the fingers; in other words, they constitute a highly stylized form of gestural communication.

Mudras in Buddhism

- Mudras also represent the dominant themes in particular episodes of the Buddha's life, making the gestures useful as narrative and pedagogical devices for viewers familiar with the symbolism.
- While there are a large number of esoteric mudras, over time Buddhist art has retained only five of them for the representations of the Buddha.
- Images of the Buddha which exhibit mudras other than these are extremely rare.
- The significance of these mudras can be gauged from the fact that each of the five transcendental (Dhyani) Buddhas is assigned one of these mudras, and they are invariably depicted in visual arts with this particular mudra only.

Five primary mudras

1-The abhaya mudra:

- One of the five commonly depicted mudras in Buddhism, the abhaya mudra is associated with the fifth Dhyani-Buddha, Amoghasiddhi.
- The gesture symbolizes peace and friendship and denotes the acts of pacification, reassurance or protection.
- It is performed using either the right hand or both hands, with the fingers outstretched, with the palms slightly cupped and facing the viewer.

2- The dharmachakra mudra



- This mudra is associated with the first Dhyani-Buddha, Vairochana, who is one of the five aspects of Buddha according to the Tibetan concept of the five-Buddha families.
- Dharmachakra in Sanskrit means the 'Wheel of Dharma'.
- This mudra symbolizes one of the most important moments in the life of Buddha, the occasion when he preached to his companions the first sermon after his Enlightenment in the Deer Park at Sarnath.
- In this mudra the thumb and index finger of both hands touch at their tips to form a circle.
- This circle represents the Wheel of Dharma, or in metaphysical terms, the union of method and wisdom.
- The three remaining fingers of the two hands remain extended.

3- The bhumisparsha mudra

- It symbolizes the moment of inception of the Buddha, when the prince Siddhartha attained enlightenment under the pipal tree (also known as the bodhi tree).
- Literally translated to “earth touching mudra,” it is also often referred to as the “earth witness” and is usually associated with the Dhyani-Buddha Akshobhya.
- The figure depicting the mudra is always shown in the seated position, with the right hand reaching over the knee so that all five fingers extend downwards to touch the earth.
- The gesture is believed to be an invocation of the earth goddess, who witnessed the Buddha’s ascendance to the state of enlightenment.
- The mudra is also thought to proclaim the defeat of temptation and evil intention, personified by the demon king, and challenge his supremacy.

4- The varada mudra

- The varada mudra is associated with the third Dhyani-Buddha Ratnasambhava.
- It is depicted or performed in both the sitting and standing positions and is commonly known as the “boon-granting” mudra, or dana mudra.
- In India, this mudra makes its earliest appearance in depictions of Avalokitesvara during the fourth and fifth centuries.
- The mudra is almost always depicted using the left hand, with the palm and all five fingers angled downward and facing the viewer.

5- The dhyana mudra

- Dhyana, meaning “meditation” in Sanskrit, denotes a state of concentration and is most commonly associated with the fourth Dhyani-Buddha,
- The dhyana mudra is performed in the seated padmasana (cross-legged) position and is usually depicted using both hands, with the hands held at the level of the stomach and resting on the thigh or lap; the right hand, with all fingers fully extended is placed palm-up over the similarly placed left hand.

Abhaya mudra in Hindu religion



- Over time, the abhaya mudra appeared in depictions of Hindu deities, and the Buddha himself was absorbed into the Hindu pantheon as the ninth avatar of the Puranic god Vishnu.
- As multiple traditions, practices, and cultural influences mingled in the great melting pot of the Indian subcontinent, mudras were seen in art and visual depictions of gods.
- The abhaya mudra was seen in divine depictions, most commonly of Buddha, Shiva, Lord Vishnu, and Lord Ganesh.



GS III

2. Advanced Medium Combat Aircraft prototype expected by 2028-29

Source: The Hindu

Prelims:

Mains:

Context: The Defence Ministry is planning to involve the private sector significantly in the design and development of the indigenous fifth-generation fighter aircraft, the Advanced Medium Combat Aircraft (AMCA). This involvement is crucial for the timely execution of the project, with the first prototype expected by 2028-29, according to official sources.

Fifth-generation fighter jets:

- Fifth-generation fighter jets are designed to carry out a range of missions, such as air-to-air combat and ground attack.
- They have plain surfaces, specially shaped exhaust nozzles, and engines located in the plane's body to hide heat signatures.
- They also have special radars to detect the aircraft's own radar emissions.
- Only a few countries have built a fifth-generation stealth fighter aircraft.
- The list of the aircraft currently in service includes the F-22 Raptor and F-35A Lightning II of the US, the Chinese J-20 Mighty Dragon, and the Russian Sukhoi Su-57.

Advanced Medium Combat Aircraft (AMCA)

- Advanced Medium Combat Aircraft (AMCA) is India's fifth-generation fighter multirole fighter jet.
- This aircraft will be bigger than other fighters in the Indian Air Force inventory.
- The aircraft will put India in a select group of nations that have their own fifth-generation fighter aircraft.

Organisations involved:

- The Aeronautical Development Agency (ADA) under the Defence Research and Development Organisation (DRDO) will be the nodal agency for executing the programme and designing the aircraft.
- It will be manufactured by state-owned Hindustan Aeronautics Limited (HAL)



Features:

Stealth

- The 25-tonne twin-engine aircraft will have advanced stealth features to avoid detection by enemy radar.

Fuel & Weapons

- The aircraft will have a large, concealed internal fuel tank of 6.5-tonne capacity, and an internal weapons bay for a range of weapons, including indigenous weapons, to be buried in its belly.
- Engine
- The AMCA Mk1 variant will have the US-built GE414 engine of the 90 kilonewton (kN) class.
- The more advanced AMCA Mk2 will fly on the more powerful 110kN engine.
- This will be developed indigenously by DRDO's Gas Turbine Research Establishment (GTRE) in collaboration with a foreign defence major.

Significance of Advanced Medium Combat Aircraft (AMCA)

- India's indigenous fifth-generation fighter aircraft
- The AMCA will be India's indigenous fifth-generation fighter aircraft.
- The indigenous Light Combat Aircraft (LCA) Tejas is a 4.5-generation single-engine multirole aircraft.
- Advance stealth feature

What will set this aircraft apart from the existing fourth-generation is primarily its stealth features:

- The aircraft will have a low electro-magnetic signature, which will make it difficult for enemy radar to detect it.
- At the same time, it will have powerful sensors and new weapons, so it is able to register the signature of enemy aircraft and take them out.

Higher utilisation time and smaller serviceability:

- Another important aspect would be to ensure a higher utilisation time and smaller serviceability or maintenance periods for the aircraft.
- This will be aided by the inclusion of a comprehensive Integrated Vehicle Health Management (IVHM) system to keep track of multiple structural components, and to assess the condition of the aircraft in real-time.

IAF's dwindling numbers

- The IAF currently has around 30 fighter squadrons against the sanctioned strength of 42.
- This number is expected to go down further as squadrons of MiG-21s, MiG-29s, Jaguars, and Mirage 2000s are scheduled to be phased out by the middle of the next decade.
- The IAF has indicated that it requires seven squadrons of the AMCA to begin with.

Strategic significance

- China has made great progress in the development and deployment of fifth-generation fighter aircraft.
- It has recently deployed its twin-engine J-20 FGFA in Tibet bordering India.

Clearance from Cabinet Committee on Security (CCS)

The development of AMCA is planned to be carried out in two phases:

- a MK1 with the General Electric F414 engine and



- a Mk2 with a more powerful engine planned to be co-developed in partnership with Saran of France for which discussions are under way.

3. PLI Scheme to Boost the Recycling of Critical Minerals in India

Source: IE

Prelims:

Mains:

Context: A Production Linked Incentive (PLI) scheme to encourage the recycling of critical minerals in India is being designed by the Ministry of Mines. It is intended to complement the Battery Waste Management Rules (BWMR) 2022 and is in line with NITI Aayog policy recommendations.

What are Critical Minerals?

- A mineral is critical when the risk of supply shortage and associated impact on the economy is (relatively) higher than other raw materials.
- These minerals are essential for economic development and national security, and their lack of availability/ the concentration of extraction/ processing in a few geographical locations could potentially lead to supply chain vulnerabilities.
- These minerals (such as lithium, graphite, cobalt, titanium, and rare earth elements) are essential for the advancement of many sectors, including high-tech electronics, telecommunications, transport, and defence.
- It forms part of multiple strategic value chains, including -
 1. Clean technologies initiatives such as zero-emission vehicles, wind turbines, solar panels;
 2. Information and communication technologies, including semiconductors; and
 3. Advanced manufacturing inputs and materials such as defence applications, permanent magnets, ceramics.
- Though India has not been a dominant player in the global supply chain for various critical minerals, it has been working to strengthen its position in the mining and processing of critical minerals.
- The Ministry of Mines has actively engaged with resource-rich countries for access to critical minerals as well as domestic exploration and auction of critical mineral blocks.

Measures Initiated by the GoI to Attain Self-reliance in Critical Minerals:

- Geological Survey of India (GSI): An attached office of the Ministry of Mines, the GSI has recently carried out mineral exploration in Salal-Haimna areas (Reasi district, J&K), and estimated 5.9 million tonnes of lithium ore.



- Khanij Bidesh India Ltd (KABIL): A joint venture company namely KABIL is mandated to identify and acquire overseas mineral assets of critical and strategic nature (lithium, cobalt) to ensure supply side assurance.
- Mineral Security Partnership (MSP): India has recently been inducted into the MSP, a US-led collaboration of 14 countries that aims to catalyse public and private investment in critical mineral supply chains globally.
- The Mines and Minerals (Development and Regulation) [MMDR] Act:
 1. The MMDR Act 1957 was amended in 2023, empowering the central government to exclusively auction mining lease and composite licence for 24 critical minerals.
 2. The objective of this amendment is to increase exploration and mining of critical minerals and ensure self-sufficiency in supply of critical minerals.

Recycling of Critical Minerals in India:

Opportunity for India:

- India is currently the third-biggest contributor to e-waste, with 3.3 million tonnes produced in 2019, compared to 53.6 million tonnes globally.
- E-waste contains many reusable materials, including base metals, precious metals, and rare earth elements.
- Hence, there will be a large scope for critical minerals' recovery from discarded e-waste in the coming few years.
- China, for example, has succeeded in producing more cobalt by recycling than by mining.

Advantages of recycling critical minerals:

- Promoting the recycling of e-waste would provide an opportunity to stabilise the market with assured domestic supplies of critical raw materials (CRMs).
- It will conserve energy and the environment by reducing requirements from mines.
- Recycled metals can be 2 to 10 times more energy-efficient than metals smelted from virgin ore.

Challenges for India:

- India's e-waste generation is poised to surge, driven by rapid growth in solar and wind energy infrastructure and EV adoption.
- However, recycling rates in India are currently low, with some lead, copper and nickel success.
- Much of the e-waste management in India is done by the informal sector, including collection, segregation, dismantling, and recycling.

Steps taken by India:

- The BWMR 2022 requires the recycling of used EV lithium-ion batteries in a phased manner starting in 2026.
- These rules mandate that producers of batteries containing lithium, nickel, cobalt, and lead ensure environmentally sound management of waste batteries through Extended Producer Responsibility (EPR) compliance.



Proposed PLI Scheme to Boost the Recycling of Critical Minerals in India:

Background: In a report released in 2023, NITI Aayog recommended for a PLI scheme for critical mineral recycling in line with the Advanced Chemistry Cell (ACC) PLI scheme given to cell manufacturers.

About the scheme:

- The PLI scheme will target e-waste recycling (often referred to as “urban mining”) to recover critical minerals such as lithium, copper, cobalt, graphite, chromium, and silicon.
- It will incentivise the production of recycled critical minerals for secondary use and promote investment in advanced recycling technologies and infrastructure.
- The quantum of incentive is likely to vary based on the type and value of minerals recycled.

Objective: This move aims to foster a circular economy and bolster domestic supply chains, following a weak response to recent auctions of critical mineral blocks.



Editorial, Ideas and Opinions

4. Improving Rural Connectivity

Source: The Hindu

Context: Recently, IEEA approved a wireless network architecture for affordable broadband access in rural areas, developed at IIT Bombay.

Fundamentals of Cellular Network:

- A cellular network, such as a 5G network, includes a set of network equipment connected by communication links.
- They work together to move data between different devices and to other networks, e.g., the Internet.
- A cellular network can be divided into two sub-networks: the Access Network (AN) and the Core Network (CN)

Access Network:

- The AN includes base stations that provide wireless connectivity to mobile devices within a specific area, known as the coverage area.
- These base stations are typically seen as towers with antennae boxes on top and are installed throughout the region by a network operator.

Core Network:

- The CN is different from the AN as it contains equipment that connects to other networks, like the Internet.
- The CN is centrally located and connected to base stations via optical fiber links called backhaul.
- The CN is crucial for maintaining user mobility, a key feature of cellular networks.

Challenges of Mobile Connectivity in Rural Connectivity in India:

- Even though cellular networks seem to be everywhere, their availability and use differ greatly between urban and rural areas, especially in developing countries like India.
- According to recent data from the Telecom Regulatory Authority of India, urban areas have a tele-density of 127%, meaning each person on average has more than one mobile connection.
- In contrast, rural areas have a tele-density of 58%, meaning only about half the rural population has a mobile connection.
- This shows a clear urban-rural digital divide, a common issue in many developing countries.

Reasons for Lack of Sufficient Mobile Connectivity in Rural Areas:

- One major reason for the lack of cellular networks in rural areas is the lower income of rural residents, making mobile services too expensive for many.



- Additionally, rural areas have lower population densities, and scattered populations in villages separated by large empty spaces, and remote locations.
- For instance, bringing fiber infrastructure to a distant village in the Himalayas is neither cost-effective nor easy.
- These rural characteristics call for a communication system that can cover large areas efficiently.
- However, most research and development in cellular networks focus on urban needs in developed countries, like achieving high data rates and low latency with 5G.
- As a result, rural connectivity remains significantly behind.

IIT-Bombay Develops Wireless Network Architecture IEEE 2061-2024 Standard:

- The IEEE 2061-2024 standard defines a wireless network architecture for affordable broadband access in rural areas.
- It was approved on June 6 by the Institute of Electrical and Electronics Engineers (IEEE).
- The IEEE-2061 network also includes a CN and AN similar to cellular networks.
- However, the IEEE-2061 AN is heterogenous wherein different types of base stations coexist.
- It is different from the 5G network, where the AN is homogeneous comprising base stations of the same type and typically smaller coverage area.

Middle Mile Network:

- The IEEE-2061 standard proposes the use of a multi-hop wireless middle-mile network to extend connectivity to areas where optical-fiber links are not available.
- A multi-hop wireless middle-mile provides cost-effective connectivity over long distances, eliminating the need for a costly and difficult-to-deploy optical fiber.
- The IEEE2061-2024 provides a direct and alternative path to the Internet, unlike 4G/5G networks, which connect only through the CN.
- While the CN supports user mobility, many rural users remain stationary. Therefore, a direct Internet connection from AN, bypassing the CN, is more efficient for these users.
- Additionally, the IEEE-2061 network allows direct communication between nearby users within the AN, avoiding the CN, similar to traveling directly between two towns without detouring through a distant city.

About BharatNet Project:

- BharatNet is the world's largest optical fiber-based rural broadband connectivity project.
- It is executed by Bharat Broadband Network Limited (BBNL), a special purpose organisation under the Telecom Ministry.
- It is an ambitious rural internet access programme. An initiative by the Union government under its Digital India.

Features & Benefits of BharatNet:

- Using optical fibre, the programme is intended to bring broadband internet connectivity to each of the more than 2.5 lakh gram panchayats across the country.



- The government intends to provide a minimum of 100 Mbps bandwidth at each Gram Panchayat through BharatNet so that everyone, especially those in rural India, can access online services.
- As part of BharatNet project, the Centre will also provide last mile connectivity through Wi-Fi and other means and is setting up Wi-Fi hotspots in all gram panchayats.

Progress So Far:

- The initial scope of the project was to cover 2.5 lakh gram panchayats in the country with optical fiber by August 2021.
- However, that deadline was missed.
- Around 1.94 lakh villages have been connected at present and rest of the villages are expected to be connected in the next 2.5 years.
- The project progress was affected due to lockdown and movement restrictions due to COVID pandemic.
- In the Union Budget 2022-23, the Government extended the project deadline to 2025.



In Brief

5. Zinc's role in making legumes resilient to climate change

Source: Down To Earth

Context: Researchers have discovered that zinc plays a crucial role in enhancing the health and climate resilience of legume crops.

1. The study reveals zinc's importance in nitrogen fixation, where atmospheric nitrogen is converted into ammonia, essential for plant growth.
2. Legumes form a symbiotic relationship with rhizobia bacteria, which fix atmospheric nitrogen in root nodules sensitive to environmental factors like temperature, drought, and soil salinity.
3. The study also identified a transcription factor called Fixation Under Nitrate (FUN) that controls nodule breakdown when soil nitrogen levels are high.
4. Zinc acts as a secondary signal to regulate nitrogen fixation efficiency, with the zinc sensor FUN playing a key role.

Understanding how zinc and FUN regulate nitrogen fixation can help optimize this process in legume crops, leading to increased nitrogen availability, improved yields, and reduced reliance on synthetic fertilizers.

6. Project Nexus

Source: IE

Context: The Reserve Bank of India (RBI) has joined Project Nexus, an international initiative aimed at enabling instant cross-border retail payments by linking domestic Fast Payments Systems (FPSs) of multiple countries

- India's Unified Payments Interface (UPI) will be connected with the FPSs of Malaysia, the Philippines, Singapore, and Thailand, with potential expansion to more countries.
- Project Nexus, conceptualized by the Bank for International Settlements (BIS) Innovation Hub, aims to standardize the connectivity between various instant payment systems (IPS) globally.
- This will streamline cross-border payments, allowing transactions to be completed within 60 seconds.
- The platform simplifies the process by allowing a single connection to Nexus to link to all other countries in the network, accelerating the growth of instant cross-border payments.



6. Colombo Process

Source: IE

Context: India chaired the first meeting of the Colombo Process in Geneva, marking its first time at the helm.

About the Colombo Process:

- It is a regional consultative forum comprising 12 Asian member states and aims to share best practices related to overseas employment for South and Southeast Asian countries that send migrant workers abroad. The member states include Afghanistan, Bangladesh, Cambodia, China, India, Indonesia, Nepal, Pakistan, the Philippines, Sri Lanka, Thailand, and Vietnam. The forum, founded by 10 of these states, makes non-binding decisions by consensus.

The International Organisation for Migration (IOM) and the Colombo Process Technical Support Unit (CPTSU) provide technical and administrative support.

About the IOM:

Established in 1951 as part of the UN System, headquartered in Geneva, Switzerland. It comprises 175 member states and aims to address displacement issues and facilitate pathways for regular migration. It leads initiatives like the Global Compact For Migration.

7. Santhal Hul

Source: IE

Context: The 169th anniversary of the Santhal rebellion is celebrated

Hul Divas is observed annually on June 30 in memory of tribal leaders — Sidho and Kanhu Murmu — who led the Santhal hul (rebellion) on June 30, 1855, at Bhognadih in Sahebganj district (now Jharkhand).

Santhal Rebellion: Santhal rebellion (also known as 'Hul') (1855-1856) was a revolt against both the British East India Company and the zamindari system by the Santhal. The rebellion was led by the four sibling Brothers – Sidhu, Kanhu, Chand, and Bhairav.

Santhals and their Migration: The Santhal people migrated from the Birbhum and Manbhum regions of Bengal to modern-day Santhal Pargana. The British relocated them to the forested area of Damin-i-Koh as part of their revenue collection strategy.

Reasons behind the Hul: The Santhals rebelled against the British due to extortions, oppressive extractions, dispossession of property, false measurements, and other illegalities.



Organization of the Hul: Contrary to popular belief, the Hul was a well-planned and organized political war. Preparations included guerrilla formations, military teams, detectives, secret bases, logistics, and a network of message carriers for coordination. Non-Adivasi Hindu castes also participated in the rebellion.

Contribution of Women: Phulo-Jhano, two sisters, led an army of 1,000 women who played crucial roles in the rebellion. The East India Company's army was defeated twice during the uprising.

End : After the rebellion started, martial law was proclaimed by the East India Company which lasted until January 3, 1856, when martial law was suspended and the Presidency armies eventually suppressed the rebellion.

Lasting Impact of the Hul: The Santhal rebellion inspired future uprisings, such as the Santhal involvement in the 1857 mutiny. It symbolized resistance against British colonialism and laid the foundation for subsequent movements in Jharkhand.



Daily Quiz

Q1. Consider the following statements regarding the abhaya mudra:

1. The abhaya mudra is a gesture with a raised open palm that symbolizes reassurance and freedom from fear.
2. It is associated with the Dhyani-Buddha Amoghasiddhi in Buddhism.
3. It is unique to Buddhism and does not appear in other religions.

Which of the above statements is/are correct?

- A) 1 only
- B) 1 and 2 only
- C) 1 and 3 only
- D) 1, 2, and 3

Q2. Consider the following statements about the five primary mudras in Buddhism:

1. The abhaya mudra symbolizes peace and friendship.
2. The dharma chakra mudra symbolizes the occasion when Buddha preached his first sermon after enlightenment.
3. The bhumisparsha mudra is associated with the Dhyani-Buddha Ratnasambhava.

Which of the above statements is/are correct?

- A) 1 and 2 only
- B) 2 and 3 only
- C) 1 and 3 only
- D) 1, 2, and 3

Q3. Consider the following statements regarding the Advanced Medium Combat Aircraft (AMCA):

1. The AMCA will be India's fifth-generation fighter multirole fighter jet.
2. The Aeronautical Development Agency (ADA) under the Defence Research and Development Organisation (DRDO) will be the nodal agency for executing the programme and designing the aircraft.
3. The AMCA Mk1 variant will have an engine developed by DRDO's Gas Turbine Research Establishment (GTRE).

Which of the above statements is/are correct?

- A) 1 only
- B) 1 and 2 only
- C) 2 and 3 only
- D) 1, 2, and 3

Q4. Consider the following features of the AMCA:

1. It will have advanced stealth features to avoid detection by enemy radar.
2. It will have a large, concealed internal fuel tank of 6.5-tonne capacity.
3. It will have an internal weapons bay for a range of weapons, including indigenous weapons.

Which of the above statements is/are correct?

- A) 1 only
- B) 1 and 2 only
- C) 1 and 3 only
- D) 1, 2, and 3



Q.5 Consider the following statements regarding Critical Minerals:

1. Critical minerals are essential for economic development and national security.
2. These minerals are concentrated in a few geographical locations, which could lead to supply chain vulnerabilities.
3. India has been a dominant player in the global supply chain for various critical minerals.

Which of the above statements is/are correct?

- A) 1 only
- B) 1 and 2 only
- C) 2 and 3 only
- D) 1, 2, and 3

Q6. Consider the following statements about the proposed PLI scheme to boost the recycling of critical minerals in India:

1. The PLI scheme will target e-waste recycling to recover critical minerals such as lithium, copper, and cobalt.
2. It will incentivize the production of recycled critical minerals for secondary use.
3. The quantum of incentive is likely to vary based on the type and value of minerals recycled.

Which of the above statements is/are correct?

- A) 1 only
- B) 1 and 2 only
- C) 2 and 3 only
- D) 1, 2, and 3

Q7. Consider the following statements regarding Cellular Networks:

1. A cellular network can be divided into an Access Network (AN) and a Core Network (CN).
2. The Core Network (CN) includes base stations that provide wireless connectivity to mobile devices.

Which of the above statements is/are correct?

- A) 1 only
- B) 2 only
- C) Both 1 and 2
- D) Neither 1 nor 2

Q8. Consider the following statements about the role of zinc in legume crops:

1. Zinc is crucial for enhancing the health and climate resilience of legume crops.
2. Zinc plays a role in the nitrogen fixation process by acting as a secondary signal to regulate nitrogen fixation efficiency.

Which of the above statements is/are correct?

- A) 1 only
- B) 2 only
- C) Both 1 and 2
- D) Neither 1 nor 2

Q9. Consider the following statements about the Colombo Process:

1. The Colombo Process is a regional consultative forum comprising 12 Asian member states.
2. The forum aims to share best practices related to overseas employment for South and Southeast Asian countries that send migrant workers abroad.
3. Decisions made by the forum are legally binding on member states.

Which of the above statements is/are correct?



- A) 1 and 2 only
- B) 2 and 3 only
- C) 1 and 3 only
- D) 1, 2, and 3

Q10. Consider the following statements about the Santhal Rebellion:

- 1. The Santhal Rebellion was also known as the 'Hul.'

- 2. The rebellion was led by Sidhu, Kanhu, Chand, and Bhairav.
- 3. The rebellion took place during 1857-1858.

Which of the above statements is/are correct?

- A) 1 and 2 only
- B) 2 and 3 only
- C) 1 and 3 only
- D) 1, 2, and 3



Solutions

Answer: 1 B) 1 and 2 only

Explanation: Statements 1 and 2 are correct. The abhaya mudra is a gesture with a raised open palm that symbolizes reassurance and freedom from fear (statement 1). It is associated with the Dhyani-Buddha Amoghasiddhi in Buddhism (statement 2). Statement 3 is incorrect because the abhaya mudra appears in other religions, such as Hinduism, and is depicted in the iconography of Hindu deities like Shiva and Vishnu.

Answer: 2 A) 1 and 2 only

Explanation: Statements 1 and 2 are correct. The abhaya mudra symbolizes peace and friendship (statement 1). The dharmachakra mudra symbolizes the occasion when Buddha preached his first sermon after enlightenment (statement 2). Statement 3 is incorrect because the bhumisparsha mudra is associated with the Dhyani-Buddha Akshobhya, not Ratnasambhava.

Answer: 3 B) 1 and 2 only

Explanation: Statements 1 and 2 are correct. The AMCA will be India's fifth-generation fighter multirole fighter jet (statement 1). The Aeronautical Development Agency (ADA) under the Defence Research and Development Organisation (DRDO) will be the nodal agency for executing the programme and designing the aircraft (statement 2). Statement 3 is incorrect because the AMCA Mk1 variant will have the US-built GE414 engine, not one developed by DRDO's Gas Turbine Research Establishment (GTRE).

Answer: 4 D) 1, 2, and 3

Explanation: All the statements are correct. The AMCA will have advanced stealth features to avoid detection by enemy radar (statement 1). It will have a large, concealed internal fuel tank of 6.5-tonne capacity (statement 2). It will also have an internal weapons bay for a range of weapons, including indigenous weapons (statement 3).

Answer: 5 B) 1 and 2 only

Explanation: Statements 1 and 2 are correct. Critical minerals are essential for economic development and national security (statement 1), and their concentration in a few geographical locations can lead to supply chain vulnerabilities (statement 2). Statement 3 is incorrect because India has not been a dominant player in the global supply chain for various critical minerals.

Answer: 6 D) 1, 2, and 3

Explanation: All the statements are correct. The PLI scheme will target e-waste recycling to recover critical minerals such as lithium, copper, and cobalt (statement 1). It will incentivize the production of recycled critical minerals for secondary use (statement 2). The quantum of incentive is likely to vary based on the type and value of minerals recycled (statement 3).

Answer: 7 A) 1 only

Explanation: Statement 1 is correct. A cellular network can be divided into the Access Network (AN) and the Core Network (CN). Statement 2 is incorrect. The Access Network (AN) includes base



stations that provide wireless connectivity to mobile devices, not the Core Network (CN).

Answer: 8 C) Both 1 and 2

Explanation: Both statements are correct. Zinc is crucial for enhancing the health and climate resilience of legume crops and plays a role in the nitrogen fixation process by acting as a secondary signal to regulate nitrogen fixation efficiency.

Answer: 9 A) 1 and 2 only

Explanation: Statements 1 and 2 are correct. The Colombo Process is a regional consultative forum

comprising 12 Asian member states and aims to share best practices related to overseas employment for South and Southeast Asian countries that send migrant workers abroad. Statement 3 is incorrect as decisions made by the forum are non-binding.

Answer: 10 A) 1 and 2 only

Explanation: Statements 1 and 2 are correct. The Santhal Rebellion was also known as the 'Hul' and was led by Sidhu, Kanhu, Chand, and Bhairav. Statement 3 is incorrect as the rebellion took place during 1855-1856.





**UPSC
Mentorship**

A Unit of Mentorship India



कौशल भारत - कुशल भारत



Power To Empower



75
Azadi Ka
Amrit Mahotsav



एक कदम स्वच्छता की ओर

GET IN TOUCH

+919999057869

www.upsmentorship.com

@mentorship.india

C - 103, Second Floor, Sector-2
Noida - 201301

contact@mentorshipindia.com