

# General Studies

## Current Affair Test (October-2024)

### 1. Ans: (d)

The Munich Agreement, signed in 1938, was a deal between Germany, France, Great Britain, and Italy, which permitted Nazi Germany to annex the Sudetenland, a border region of Czechoslovakia with a significant ethnic German population. Czechoslovakia, despite being directly affected, was not involved in the negotiations.

The agreement, championed by British Prime Minister Neville Chamberlain, was an attempt to appease Adolf Hitler and maintain peace.

However, Hitler violated it within six months by invading the rest of Czechoslovakia, marking the failure of the appeasement policy.

### 2. Ans: (c)

Motor symptoms of Parkinson's disease primarily include tremors, bradykinesia (slowness of movement), rigidity, postural instability, and dystonia (involuntary muscle contractions). Gastrointestinal symptoms such as constipation and drooling are non-motor symptoms. These non-motor symptoms significantly affect the quality of life but are often under recognized compared to motor issues.

### 3. Ans: (d)

"Operation Bhediya" was launched to capture the wolves responsible for the attacks in Bahraich, Uttar Pradesh. Despite ongoing efforts, some wolves have yet to be captured, leaving the local community in fear. The operation has successfully captured four wolves so far.

### 4. Ans: (a)

The Indian Gray Wolf is indeed listed in Schedule I of the Wildlife (Protection) Act, giving it full protection under Indian law. However, it is listed under Appendix I of CITES, not Appendix III. As per the IUCN Red List, it is classified as "Least Concern" rather than "Critically Endangered."

### 5. Ans: (c)

Sudan has a coastline along the Red Sea to the east. Its strategic position along this important body of water allows for significant maritime activities and is key to its trade and economic relationships with neighboring countries.

### 6. Ans: (b)

The Ramon Magsaysay Award was established in 1957 to honor the legacy of Ramon Magsaysay, the third president of the Philippines. However, it is not limited to Southeast Asian citizens—it recognizes individuals

from all over Asia who have shown exceptional dedication to serving the people of the continent. The award is often referred to as Asia's Nobel Prize and includes a certificate, medallion, and a cash prize, making statement 2 correct.

### 7. Ans: (a)

IUCN Least Concern refers to species not currently at significant risk, while CITES Appendix I regulates international trade in endangered species. Schedule I of the Wildlife (Protection) Act of 1972 provides the highest protection to species in India. "Endangered" refers to species at high risk of extinction.

### 8. Ans: (b)

Statement 1 is incorrect

Mitochondria are dynamic structures, constantly changing in size, number, and location within the cell to meet cellular energy demands. Imbalances in this dynamic process, particularly excessive mitochondrial fragmentation, have been linked to neurodegenerative disorders such as Parkinson's disease. Mitochondrial dysfunction, including impaired energy production, is a key factor in the death of neurons in Parkinson's, contributing to the progressive nature of the disease.

### 9. Ans: (b)

Statement 1 is correct as Article 21 of the Indian Constitution recognizes the right to clean water as part of the right to life, making access to clean water a fundamental right.

Statement 2 is also correct; the Model Groundwater Bills have been revised multiple times to empower state boards to manage water resources effectively by creating state-specific laws.

Statement 3 is incorrect because the Polluter Pays Principle mandates that the polluter, not the government, bears the cost of cleaning up groundwater contamination. This principle ensures accountability and encourages the prevention of environmental damage by placing the financial burden on those responsible for pollution.

### 10. Ans: (c)

The Asiatic cheetah, which is critically endangered with only about 40-50 individuals surviving in Iran, is distinguished by its 'red eyes'. This feature differentiates it from the African cheetah, which is generally larger in size and has a darker coat. The reintroduction project in India focuses on African cheetahs, as the Asiatic cheetah is nearly extinct and has a very limited population confined to Iran.

**11. Ans: (a)**

Price Support Scheme (PSS): This scheme ensures that the government directly procures crops at the Minimum Support Price (MSP) when market prices fall below a threshold. It primarily targets pulses and oilseeds to stabilize prices for farmers.

Price Deficit Payment Scheme (PDPS): Under PDPS, the government compensates farmers for the difference between the MSP and the actual market price. This scheme applies when the market price is lower than the MSP but does not involve direct procurement.

Market Intervention Scheme (MIS): MIS is invoked when there is an overproduction or glut in the market for certain commodities, causing a drop in prices. It helps stabilize prices by removing surplus stock from the market.

Price Stabilisation Fund (PSF) maintains buffer stocks of commodities like pulses and onions.

**12. Ans: (d)**

The India Semiconductor Mission (ISM) offers a 50% capital expenditure subsidy to encourage domestic semiconductor manufacturing, making statement 2 correct.

The primary goal of ISM is to reduce India's dependency on semiconductor imports, especially for critical technologies, making statement 4 correct.

However, ISM is not specifically part of the Digital India Initiative (statement 1) and does not solely focus on both civilian and defense manufacturing (statement 3), as its scope is broader, covering the overall semiconductor ecosystem. Therefore, only statements 2 and 4 are correct.

**13. Ans: (c)**

The ERCP involves Rajasthan and Madhya Pradesh, but Gujarat is not part of this river linking project.

**14. Ans: (a)**

In 2023, India was elected as a member of the 15-member steering committee of the Global Operational Network of Anti-Corruption Law Enforcement Authorities (GlobE Network). This position allows India to contribute significantly to global anti-corruption efforts, leveraging its experience and leadership in tackling corruption, especially after its G20 presidency in 2023. India's role involves facilitating international cooperation, exchanging criminal intelligence, and supporting asset recovery, positioning the country at the forefront of global efforts to combat cross-border corruption and financial crimes. Therefore, statement a is correct.

**15. Ans: (b)**

Statement 2 is incorrect.

The PMJUGA package is aimed at ensuring the saturation of basic schemes in tribal villages, with interventions to be implemented by 17 Ministries, and funding coming from each Ministry's allocated share

in the Development Action Plan for Scheduled Tribes.

**16. Ans: (b)**

Statement 3 is incorrect.

The Chambal River originates from the Vindhya Range and has tributaries like Banas and Parbati. However, it flows into the Yamuna, not directly into the Ganga.

**17. Ans: (a)**

The PARAM series of supercomputers, developed by the Centre for Development of Advanced Computing (C-DAC), includes systems like PARAM Siddhi AI, which is ranked among the top 100 supercomputers globally, and PARAM Pravega and PARAM Utkarsh. Therefore, statements 1 and 2 are correct.

However, the PARAM series is not developed by ISRO, but by C-DAC, making statement 3 incorrect.

Additionally, PARAM Shivay is not specifically used for space exploration, as it is designed for a range of applications including weather forecasting and scientific research, making statement 4 incorrect. Thus, only statements 1 and 2 are correct.

**18. Ans: (b)**

Statement 1 is incorrect.

The L69 Grouping comprises developing nations from Asia, Africa, Latin America, and the Pacific, not just African nations. It focuses on both permanent and non-permanent seat expansion, and India is a member of this group.

**19. Ans: (d)**

The C10 Grouping is a coalition of 10 African nations focused on UNSC reform, particularly Africa's representation, as promoted in the Ezulwini Consensus. It is not focused on economic reforms in global institutions.

**20. Ans: (a)**

The UNSC was established in 1945 after World War II, has binding decision-making power, and its permanent members (P5) have veto power. However, non-permanent members do not have equal voting power, as veto is exclusive to the P5.

**21. Ans: (c)**

Statement 1 is incorrect as PLFS is conducted by the National Statistical Office (NSO), not the Ministry of Labour and Employment.

Statement 2 is correct because PLFS covers households from both rural and urban areas.

Statement 3 is also correct, as one of the primary objectives of PLFS is to track unemployment rates across different demographic groups.

Statement 4 is incorrect because PLFS data is used for labour-related policies, not inflation-related policies.

**22. Ans: (c)**

The white rhino is classified as "Near Threatened" according to the IUCN status. In contrast, the black

rhino and Sumatran rhino are critically endangered, and the Greater One-Horned Rhino is listed as vulnerable.

**23. Ans: (a)**

Statement 1 is incorrect because the initiative specifically targets cancer in the Indo-Pacific, with a particular focus on cervical cancer.

Statement 2 is correct, as the initiative promotes HPV vaccination and early screening to prevent cervical cancer.

Statement 3 is also correct since the Quad countries plan to collaborate with organizations like Gavi to lower screening costs and improve access to cancer care. This initiative is a regional effort with a focus on cervical cancer prevention and treatment.

**24. Ans: (d)**

All three statements are incorrect. CSIRT-Power is not focused on defense infrastructure but rather the power sector. It was established following the National Cyber Security Policy of 2013, not under the Digital India Mission. Furthermore, its primary objective is to strengthen cybersecurity in the power sector, not to provide internet access to rural communities.

The Union Minister inaugurated the COMPUTER SECURITY INCIDENT RESPONSE TEAM – POWER (CSIRT-Power) facility, aimed at protecting India's power infrastructure from increasing cyber threats.

The facility is a proactive response to the growing risk of cyberattacks on the power sector, which is a critical part of national infrastructure.

CSIRT-Power, equipped with advanced cybersecurity tools and expert teams, will coordinate incident responses, enhance preparedness, and strengthen the cybersecurity framework of the power sector.

It addresses the sector's vulnerabilities, especially given the digital transformation and growing attack surface.

The initiative follows the National Cyber Security Policy of 2013 and seeks to build resilience through information sharing, best practices, training, and collaboration with stakeholders.

It aims to provide specialized support, prevent cyber incidents, and improve the overall security posture of the power sector.

**25. Ans: (b)**

Statement 1 is incorrect because the summit focuses on a broad range of global challenges such as sustainable development, peace, security, and digital cooperation, rather than specifically space exploration or ocean governance.

Statement 2 is correct as the Pact for the Future addresses these 21st-century challenges.

Statement 3 is also correct since the Global Digital Compact is one of the key outcomes.

**26. Ans: (b)**

Statement 1 is incorrect because although CDRI works with both public and private sectors, its broader partnerships include national governments and multilateral organizations.

CDRI prioritizes rural and remote infrastructure to enhance access in vulnerable regions.

CDRI focuses on improving last-mile connectivity and reducing disaster risks in underserved regions.

**27. Ans: (a)**

Statement 1 is correct because the work participation rate measures the proportion of the working-age population that is employed.

Statement 2 is incorrect because the unemployment rate in PLFS typically does not include those engaged in informal work, as it focuses on those seeking employment.

Statement 3 is incorrect as PLFS tracks the underemployment rate to measure workers employed for fewer hours than they desire.

Statement 4 is incorrect because PLFS covers both formal and informal sector employment.

**28. Ans: (b)**

Statement 1 is incorrect because cervical cancer, while a significant cause of cancer deaths, is the third leading cause of cancer deaths among women in the Indo-Pacific, not the leading one.

Statement 2 is correct as access to HPV vaccines and early screening remains a challenge in the region, which is a key area the Cancer Moonshot Initiative seeks to address.

Statement 3 is also correct, as the initiative plans to reduce cancer treatment costs through collaboration with private and non-governmental sectors.

**29. Ans: (a)**

Statement 1 is correct because the overall rhino population in Africa increased to 23,885 despite ongoing poaching.

Statement 2 is incorrect, as the black rhino population slightly declined by 1%, particularly in Namibia and South Africa.

Statement 3 is correct, as poaching has mainly affected the black rhino population in these two countries.

**30. Ans: (d)**

All three statements are correct. Rhino horns are primarily sold in China and Vietnam, the Sumatran rhino population is critically low, and rhino horn is made of keratin, similar to human hair and nails.



**RHINOCEROS**

**Assam recorded Zero poaching of Rhinoceros for 1st time in 2022 in the nearly 45 years.**

Rhinos are one of the most critically endangered species on earth. Rhino horn is poached to sell on the black market mostly in China and Vietnam. The misconception that the keratin in rhino horn has medicinal properties that can cure a variety of ailments from hangovers to erectile dysfunction has made rhino poaching lucrative. Indian Rhinos are Asia's largest species of Rhino. In India they are found in Assam, West Bengal and Uttar Pradesh.

**Assam is home to the largest population of greater-one horned rhinos, with more than 90% in Kaziranga National Park. Pobitora Wildlife Sanctuary (Assam) harbors the highest density of rhino population.**

**Assam now a Safe Abode for Rhinos**

**0 Poaching in 2022**

**Lowest Poaching in 22 years**

**Types of Rhinos found in the world:**

- Black Rhino: Critically endangered
- White Rhino: Near Threatened
- Sumatran Rhino: Critically Endangered
- Lesser One-Horned Rhino (Javan Rhino): Critically Endangered
- Greater One-Horned Rhino (Indian Rhino): Vulnerable

**Rhino conservation efforts:**

- Indian Rhino Mission (2020):** To increase rhino population in Assam to 3000 by establishing population in 7 protected areas.
- Special Rhino Protection Force:** Assam government constituted it to check Rhino poaching and related activities.

**Global rhino population**

Greater one-horned: 4,054  
Black: 4,195  
White: 35,842  
Javan: 76

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### 31. Ans: (d)

Civil contempt occurs when a person or entity willfully disobeys a court order or breaches a legal obligation, such as failing to comply with a court judgment.

Criminal contempt, on the other hand, involves actions that obstruct or undermine the authority, dignity, or functioning of the court, such as showing disrespect in court or disrupting judicial proceedings.

### 32. Ans: (b)

The primary objective of "Exercise AIKYA" was to enhance disaster management preparedness by focusing on simulations, technology discussions, and expert insights. The event aimed at improving the coordination between defence forces and civil authorities in managing disasters, especially in areas prone to cyclones and floods.

### 33. Ans: (c)

Jordan has become the first country in the world to receive World Health Organization (WHO) verification for eliminating leprosy. This milestone is a result of strong political commitment, effective public health strategies, and collaboration, with no locally transmitted cases reported in over two decades. Jordan's achievement serves as a global model for leprosy elimination efforts.

### 34. Ans: (b)

India has launched its first Fast Track Immigration-Trusted Traveller Programme (FTI-TTP) aimed at providing quicker immigration processing for High-Net-Worth Individuals (HNWIs), CEOs, businessmen, and Overseas Citizens of India (OCI).

The program, operational at major airports such as Delhi and Mumbai, offers faster immigration clearance through e-gates.

Enrollees must apply online, provide biometrics at airports or Foreigners Regional Registration Offices

(FRRO), and can enjoy fast-track clearance for up to five years.

The program ensures secure handling of personal data and is inspired by the US Global Entry system, tailored to Indian needs.

### 35. Ans: (b)

Statement 1 is correct. The guidelines introduce a revenue-sharing model between the government and private operators to make charging stations more financially viable.

Statement 2 is incorrect. Charging stations are encouraged in various locations, not just highways. They can be installed in office buildings, public spaces, shopping malls, and petrol stations, among other places.

Statement 3 is correct. The guidelines promote EV charging during solar hours (9 AM to 4 PM) by offering lower tariffs, aiming to encourage the use of renewable energy for charging EVs.

### 36. Ans: (a)

Bengaluru-based startup Bellatrix Aerospace unveiled "Project 200," an innovative satellite designed to operate at Ultra-Low Earth Orbit (180-250 km) during the Bengaluru Space Expo 2024.

This orbit could revolutionize satellite capabilities, enhancing applications like high-resolution Earth observation and telecommunications.

The startup's breakthrough propulsion technology will allow satellites to operate at this low altitude for years, overcoming the challenges of atmospheric drag.

This new technology reduces communication latency by half, improves image resolution by three times, and significantly lowers satellite costs, marking a major shift in satellite operations.

Statement 1 is correct. Operating in ULEO allows "Project 200" to significantly reduce communication latency due to its closer proximity to Earth.

Statement 2 is incorrect. Satellites in ULEO provide higher resolution images because of their closer proximity to Earth.

Statement 3 is correct. The reduced operational cost is a major advantage of satellites in ULEO, as they require less investment compared to those in higher orbits.

Statement 4 is incorrect. Atmospheric drag is a significant challenge for satellites in ULEO, but Bellatrix Aerospace's propulsion technology helps overcome this issue.

### 37. Ans: (a)

The main purpose of filing a contempt petition is to bring attention to the violation or disobedience of a court's order or judgment. It seeks enforcement of the court's decision and holds the defying party accountable. If the court finds that contempt has been

committed, it may impose penalties, such as fines or imprisonment, to ensure compliance.

**38. Ans: (d)**

Statement 1 is incorrect. The symposium was a joint initiative of the National Disaster Management Authority (NDMA) and the Southern Command of the Indian Army, not the Indian Navy.

Statement 2 is correct. The focus of "Exercise AIKYA" was disaster management in southern states, which are prone to natural calamities like cyclones and floods.

Statement 3 is incorrect. While technology and preparedness were discussed, the event was not specifically aimed at developing new disaster response vehicles but at enhancing overall disaster management strategies.

**39. Ans: (d)**

Statement 1 is incorrect. Leprosy elimination refers to the reduction of the disease to a level where it is no longer a public health concern, not the total eradication of the disease globally.

Statement 2 is incorrect. WHO verification does not require zero new cases for five years, but rather a significant reduction in locally transmitted cases over an extended period, often two decades or more, as seen in Jordan.

**40. Ans: (c)**

Jordan has a coastline along the Gulf of Aqaba, which is part of the Red Sea. This narrow strip of coastline is Jordan's only access to the sea, and the city of Aqaba is a key port and a hub for tourism and trade. Jordan does not have a coastline on the Mediterranean Sea or Persian Gulf.

**41. Ans: (d)**

The Pradhan Mantri Janjatiya Unnat Gram Abhiyan builds on the success of the PM Janjati Adivasi Nyaya Maha Abhiyan (2023) and expands the approach towards holistic development of tribal communities across India through a cooperative federal framework.

**42. Ans: (b)**

Statement 3 is incorrect.

The NCoE for AVGC-XR focuses on offering specialized training and fostering intellectual property (IP) creation in fields like Animation, Visual Effects, Gaming, and Extended Reality.

While cultural content creation is a part of the institution's mission, its primary focus is not on promoting cultural exchanges but on enhancing India's soft power and economic growth through digital content creation.

**43. Ans: (b)**

The Price Support Scheme (PSS) under PM-AASHA focuses on procuring pulses, oilseeds, and copra through central nodal agencies like NAFED and FCI. The

government procures 25% of the marketable surplus and bears the procurement costs and losses.

**44. Ans: (c)**

Rapeseed and Mustard are listed under Rabi crops, not Kharif crops. The Kharif crop list includes crops such as paddy, cotton, and groundnuts, for which the MSP is announced by the government.

**45. Ans: (a)**

The Bio-RIDE scheme merges two existing biotechnology programs to foster innovation and bio-entrepreneurship, while also promoting sustainable practices through a circular bioeconomy.

The scheme's primary focus is not on large-scale industrial infrastructure but on cutting-edge research, sustainable biomanufacturing, and developing biotechnology solutions in fields like healthcare and agriculture.

**46. Ans: (a)**

Statement 3 is incorrect.

The mission focuses on addressing social infrastructure gaps, including education, healthcare, and connectivity. Its key goals include providing pucca houses, enhancing mobile and road connectivity, and promoting economic empowerment through skills training.

Industrial development is not a primary goal; rather, it focuses on sustainable and inclusive development for tribal communities.

**47. Ans: (d)**

- The Union Cabinet has approved the development of the Bharatiya Antariksh Station (BAS-1) as part of an expanded Gaganyaan programme, marking a significant leap in India's space ambitions.
- The plan involves completing eight missions, including uncrewed ones, by December 2028, with BAS-1 expected to be operational by 2035.
- Additionally, the decision sets the groundwork for a crewed lunar mission by 2040.

**Key highlights:**

- Gaganyaan programme now includes eight missions.
- BAS-1 will focus on microgravity-based scientific research and technology development, generating opportunities in high-tech sectors.
- ISRO will lead the efforts, collaborating with industry and academia, to develop critical technologies for long-duration human space missions.
- The Cabinet also approved the Chandrayaan-4 mission and a Venus Orbiter mission.

**48. Ans: (d)**

Pheromones are chemical substances used by animals, including humans and insects, to communicate with other members of the same species, facilitating behaviors like mate attraction, marking territory, and signaling danger.

They are not involved in digestion or nutrient absorption, which are physiological processes unrelated to pheromones.

**49. Ans: (b)**

Statement 3 is incorrect.

The Bio-RIDE scheme is designed to support cutting-edge biotechnology research, particularly in areas such as synthetic biology and bioenergy. It also promotes bio-entrepreneurship by offering funding, incubation, and mentorship opportunities. However, the focus is on sustainable and innovative biomanufacturing rather than traditional manufacturing techniques.

**50. Ans: (d)**

Under the Price Support Scheme (PSS), central nodal agencies such as NAFED and FCI procure pulses, oilseeds, and copra, and the government bears the procurement costs and any losses incurred.

PM-AASHA is designed to ensure MSP assurance for farmers, helping to stabilize prices and support their income.

Statement 2 is incorrect because the PDPS does not involve physical procurement; it only compensates the price difference between the mandi prices and MSP for oilseeds.

Statement 3 is also incorrect as the PPPS is focused on oilseeds, not rice and wheat.

**About PM AASHA:**

Scheme Component	Description
Objective	Ensure remunerative prices for farmers through Minimum Support Price (MSP) assurance. Announced in 2018 budget.
Aim	Strengthen the procurement mechanism to improve farmers' income.
Components	1. Price Support Scheme (PSS) 2. Price Deficiency Payment Scheme (PDPS) 3. Private Procurement & Stockist Scheme (PPPS)
Price Support Scheme (PSS)	Central nodal agencies (NAFED, FCI) will procure pulses, oilseeds, and copra. 25% of marketable surplus will be procured. Government covers procurement costs and losses.
Price Deficiency Payment Scheme (PDPS)	State pays the difference between mandi prices and MSP for oilseeds. No physical procurement involved. Modeled on schemes from Madhya Pradesh and Haryana.

Private Procurement & Stockist Scheme (PPPS)	Piloted in select districts. Private agencies procure oilseeds at MSP in coordination with the government when prices fall below MSP.
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**51. Ans: (b)**

Statement 1 is incorrect as the Karam tree is deciduous, not evergreen.

Statement 2 is correct, as the tree symbolizes vitality and strength in the Karam festival. Statement 3 is also correct, as it is native to the Indian subcontinent.

**52. Ans: (a)**

The ICAR-Central Marine Fisheries Research Institute (CMFRI) was designated as a Centre of Excellence for seaweed cultivation by the Department of Fisheries. The focus is on improving cultivation techniques, creating a seed bank for indigenous species, and assessing the environmental impacts of seaweed cultivation.

**53. Ans: (a)**

Quantum computing has the potential to significantly enhance large language models (LLMs) by addressing their key limitations, such as high energy consumption, hallucinations (factually incorrect outputs), and struggles with syntax.

LLMs, though powerful, are energy-intensive and can produce erroneous results due to limitations in pre-training.

Quantum Natural Language Processing (QNLP) offers a solution, as it requires fewer parameters and consumes less energy while improving understanding of both syntax and semantics.

Additionally, Quantum Generative AI (QGen-AI) models can enhance time-series forecasting, allowing for more accurate predictions with fewer computational resources.

**54. Ans: (c)**

A pager, or "beeper," is a portable communication device used to receive short messages via radio frequency. While largely replaced by mobile phones in the 1990s, Hezbollah still uses pagers for low-tech communication to evade Israeli tracking.

**How does it work?**

Pagers work by receiving short messages sent via radio waves. When a message is transmitted, the pager alerts the user, who can then respond using a nearby phone. Since pagers don't actively transmit signals like mobile phones, they are harder to track.

**55. Ans: (b)**

The Karam festival is celebrated by tribal groups like the Munda, Oraon, Ho, and Santhal across regions such as Jharkhand, West Bengal, Bihar, and Odisha. The festival honors the Karam Devta, symbolizing strength, youth, and vitality.




**56. Ans: (c)**


- Quantum computing is an advanced field of computing that uses the principles of quantum mechanics to process information.
- Unlike classical computers, which use bits as the basic unit of information (represented as 0 or 1), quantum computers use quantum bits or qubits, which can exist in a superposition of both 0 and 1 simultaneously.
- This allows quantum computers to solve certain complex problems much faster than classical computers.
- Statement 2 is correct: qubits in quantum computers can exist in superposition, representing both 0 and 1 simultaneously.
- Statement 1 is incorrect because quantum computers use qubits, not bits.
- Statement 3 is incorrect because quantum computing relies on quantum algorithms, not classical algorithms.

**57. Ans: (d)**


The National Quantum Mission (NQM) focuses on Quantum Computing, Quantum Communication, Quantum Sensing and Metrology, and Quantum Materials and Devices. There is no mention of Quantum Blockchain Systems as one of the major themes.



### Quantum Computing



**Context:** Union Cabinet has approved the National Quantum Mission (NQM)



Quantum computing uses quantum bits (qubits) that can be both 0 and 1 at the same time, allowing for multiple calculations to be performed simultaneously, making quantum computing exponentially faster than traditional computing for certain types of problems.

**About National Quantum Mission**

	Description
<b>Objective</b>	Develop and promote Quantum Technology in India
<b>Timeframe</b>	2023 – 2031 (8 years)
<b>Major themes</b>	<ul style="list-style-type: none"> <li><b>Quantum Computing:</b> Develop physical qubit computers with a capacity ranging from 50-1000 qubits (to be completed within 3-8 years)</li> <li><b>Quantum Communication:</b> Develop secure satellite-based communication with a range of 3000 km and communication lines using Quantum Key Distribution over 2000 km (to be completed within 3-8 years)</li> <li><b>Quantum Sensing and Metrology:</b> Develop quantum sensors (magnetometers with high sensitivity in atomic clock systems) for Navigation, healthcare and diagnostics, defence, and energy sectors (to be completed within 8 years)</li> <li><b>Quantum Material and Devices:</b> Develop devices and materials (superconductors, novel semiconductor structures, and topological materials) for quantum technology (to be completed within 3-8 years)</li> </ul>
<b>Key Agencies Involved</b>	Department of Science & Technology, Department of Atomic Energy, Department of Telecommunications, DRDO, ISRO
<b>Other Aim</b>	The Mission also aims to establish four <b>thematic hubs (T-Hubs)</b> at research institutes and <b>R&amp;D centres (based on above themes)</b>
<b>Significance</b>	India will be among the <b>top six leading nations</b> (US, Canada, France, Finland, China and Austria.) involved in the research and development in quantum technologies.
<b>Other programmes</b>	National Mission for Quantum Technologies and Applications ( <b>NM-QTA</b> ); Quantum-Enabled Science & Technology ( <b>QuEST</b> ); C-DOT's Quantum Communication Lab and Quantum Key Distribution ( <b>QKD</b> ) solution.

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**58. Ans: (b)**

Statement 1 is correct as the mission includes Quantum Communication involving secure satellite-based communication using Quantum Key Distribution (QKD).

Statement 2 is also correct because the mission involves key agencies like the Department of Science & Technology, DRDO, ISRO, and others.

Statement 3 is incorrect because the mission aims to make India among the top six leading nations, not the top three.

**59. Ans: (d)**

Statement 1 is incorrect because seaweed grows primarily in marine (saltwater) ecosystems, though some species may inhabit brackish or freshwater environments.

Statement 2 is incorrect because seaweed has significant applications in agriculture (fertilizers), industry (biofuels), and cuisine (nori, kelp).

Statement 3 is incorrect as seaweed plays a crucial role in marine ecosystems by providing habitat, oxygen, and acting as a carbon sink.

**60. Ans: (c)**

Statement 1 is incorrect because the Battery Waste Management (BWM) Rules, 2022 were issued by the Ministry of Environment, Forest, and Climate Change (MoEFCC), not the Ministry of New and Renewable Energy.

Statement 2 is incorrect because under Extended Producer Responsibility (EPR), producers are responsible for the entire lifecycle of batteries, including post-consumer waste management.

Statement 3 is correct as environmental compensation is imposed for failing to meet recycling targets under these rules.

**61. Ans: (a)**

- The RESET Programme, launched on National Sports Day, is spearheaded by the Lakshmi Bai National Institute of Physical Education (LNPIE).
- The initiative focuses on empowering retired athletes by providing them with career development skills to enhance their employability.
- LNPIE, a premier institution dedicated to physical education and sports, is well-positioned to lead this program, offering courses in hybrid mode, which include internships and placement assistance.
- The focus on retired sportspersons highlights the government's commitment to leveraging their experience to bridge generational gaps and nurture future talent.

**62. Ans: (a)****What is Payment Passkey Service?**

- The Payment Passkey Service is a secure, non-OTP-based method for managing online transactions.

**Here's how it works:**

- Authentication Method:** Instead of using traditional passwords or one-time passwords (OTPs), this service relies on biometric authentication (fingerprints, facial scans) or PINs available on the user's device.
- Tokenization:** The service uses tokenization to replace sensitive financial information with secure, encrypted tokens. This means your actual financial data is not shared during transactions, enhancing security.

### Transaction Process:

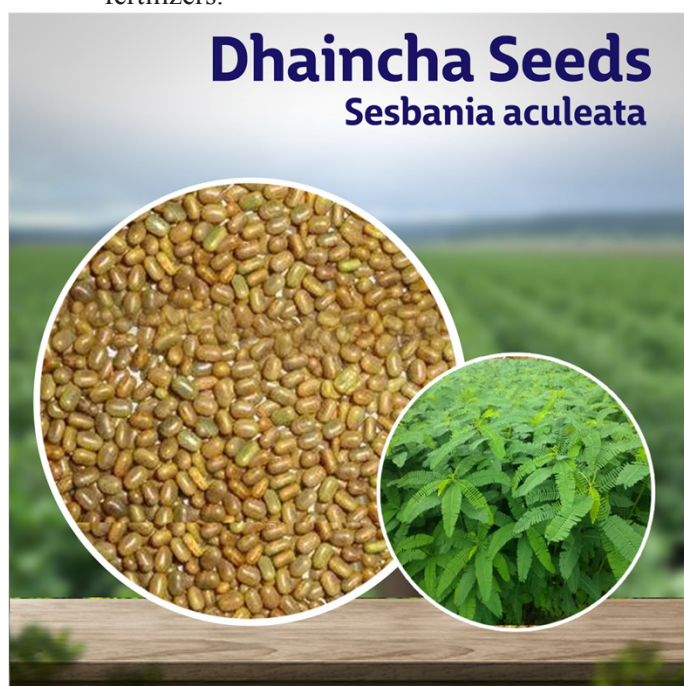
- When making a purchase, the consumer selects their Mastercard at checkout.
- For payment confirmation, the service utilizes the biometric authentication features on the user's device.
- Upon successful authentication, the transaction is completed instantly.

### Benefits:

- Simplified Transactions: Users avoid the hassle of remembering or sharing passwords and OTPs.
- Enhanced Security: By not exposing financial data and using secure tokens, the service reduces the risk of fraud.
- Faster Checkout: Streamlines the payment process, making online shopping quicker and more efficient.

### 63. Ans: (c)

- Dhaincha is primarily used in agriculture for livestock feed and as a green manure crop to improve soil fertility.
- As a leguminous plant, Dhaincha is effective in nitrogen fixation, enhancing soil structure, and increasing organic matter content when incorporated into the soil.
- This process improves soil fertility and promotes sustainable agricultural practices by naturally enriching the soil without the need for chemical fertilizers.



### 64. Ans: (d)

Statement 1 is correct; India leased a Russian Akula-class submarine in 2019 to strengthen its submarine fleet, adding advanced capabilities to its naval operations. Statement 2 is also correct; INS Arihant, commissioned in 2016, was the first of the Arihant-class submarines and has demonstrated the capability to launch SLBMs such as the K-4 and K-15.

Statement 3 is correct as well; one of the strategic challenges faced by India's SSBN fleet is the technological superiority of Chinese submarines, which poses a significant threat in the Indian Ocean region. Additionally, India's SSBN program also faces challenges related to technological development and the need for increased investment.

### 65. Ans: (d)

China is the world's largest producer of gold, consistently leading global production in recent years. The country has invested heavily in gold mining and has vast reserves that contribute significantly to its production capacity.

China's dominance in gold production highlights its strategic focus on resource extraction and its influence on global commodities markets. The large-scale production of gold in China is also reflective of the country's broader economic strategies, including the accumulation of gold reserves as part of its financial and monetary policies.

### 66. Ans: (a)

The primary objective of the RESET Programme is to empower retired athletes by providing them with career development skills that will make them more employable. The initiative is not about financial assistance, medical benefits, or returning to active competition but rather focuses on transitioning athletes into successful post-sporting careers. The programme aims to leverage the unique experiences of retired athletes, helping them to bridge generational gaps and contribute to nurturing future talent.

### 67. Ans: (b)

Statement 1 is incorrect because the World Gold Council's members are primarily gold mining companies, not central banks or financial institutions. The WGC is an industry association that works to promote the interests of its members in the global gold market.

Statement 2 is correct; the WGC has a global presence with offices in India, China, the United States, Singapore, and the UAE, enabling it to influence gold markets in key regions.

Statement 3 is correct; one of the WGC's key roles is to promote gold as an asset class, which involves market research, policy advocacy, and educational initiatives aimed at enhancing the appeal and understanding of gold among investors and policymakers.

### 68. Ans: (c)

- National Sports Day is celebrated on August 29th every year to honour the birth anniversary of Major Dhyan Chand, one of India's greatest field hockey players. Known as the 'magician of hockey,' Dhyan Chand's remarkable skills and achievements, including three Olympic gold



medals, have made him a legendary figure in Indian sports history.

- The day was established in 2012 and aims to promote physical fitness, a healthy lifestyle, and foster a strong sports culture in India, reflecting the values and dedication exemplified by Major Dhyan Chand.

**69. Ans: (b)**

- INS Arighaat is part of the Arihant-class of nuclear-powered ballistic missile submarines (SSBNs), developed indigenously under India's Advanced Technology Vessel (ATV) Project.
- The Arihant-class submarines, including INS Arihant and INS Arighaat, play a crucial role in India's nuclear triad, providing a second-strike capability and bolstering the country's nuclear deterrence posture.

**70. Ans: (c)**

Option 2 is incorrect.

Green manuring does not increase soil salinity; instead, it improves soil structure, enhances soil microorganism activity, and helps control weeds. Green manuring involves growing and incorporating leguminous plants into the soil, which enhances its fertility and structure, promotes water retention, reduces erosion, and supports a healthy soil ecosystem. Increased soil salinity would be detrimental to crops and is not associated with the benefits of green manuring.

**71. Ans: (b)**

In *Mithu vs. State of Punjab* (1983), the Supreme Court held that a mandatory death sentence violates Article 14 (equality before the law) and Article 21 (right to life). The court ruled that such a law was unfair and unjust, depriving individuals of their right to life without due process.

**72. Ans: (c)**

The Poshan Tracker is an ICT-based system developed by the Ministry of Women and Child Development to monitor the growth and nutrition of children aged 0-6 years in real-time. The initiative uses WHO growth charts and helps identify health issues for timely intervention at Anganwadi Centers.

**73. Ans: (d)**

The Vishvasya-Blockchain Technology Stack provides Blockchain-as-a-Service (BaaS) using a geographically distributed infrastructure, primarily supporting permissioned blockchain applications. This service allows companies to build and manage blockchain apps through cloud-based tools while maintaining security and decentralization.

**74. Ans: (b)**

Financialisation refers to the increasing dominance of financial markets, financial motives, and financial institutions in an economy, often overshadowing real economic activities like production and investment. It indicates a shift in focus from traditional economic sectors to finance-driven activities.

**75. Ans: (c)**

The India Graphene Engineering and Innovation Centre (IGEIC) was established to bridge the gap between R&D and commercialization in the field of graphene technology, offering support to startups and industry to foster innovation and development in this high-potential field.

**76. Ans: (a)**

Statements 1 and 2 are correct. Quantum Theory deals with microscopic particles and their interactions, while General Relativity describes gravitational forces affecting large-scale objects.

Statement 3 is incorrect because Quantum Theory and General Relativity have not yet been fully unified, and the conflict between them is a central issue in modern physics, often referred to as the problem of quantum gravity.

**77. Ans: (c)**

Graphene is a light material and 1 mm weighs less than a gram, making it much lighter than lead. The other properties listed (strength, conductivity, and biocompatibility) are correct descriptions of graphene.

**78. Ans: (d)**

All three statements are correct. Statement 1 describes the core feature of blockchain technology, where each block is encrypted and tamper-proof.

Statement 2 refers to the decentralized nature of blockchain, where control is distributed across a network.

Statement 3 highlights the role of smart contracts, which are self-executing contracts embedded within the blockchain that enforce the terms of an agreement automatically.

**79. Ans: (a)**

Statement 1 is correct because excessive financialisation can result in asset price inflation, making markets prone to crashes, as seen in various financial bubbles.

Statement 2 is also correct, as financialisation tends to benefit the wealthy more, leading to economic inequality.

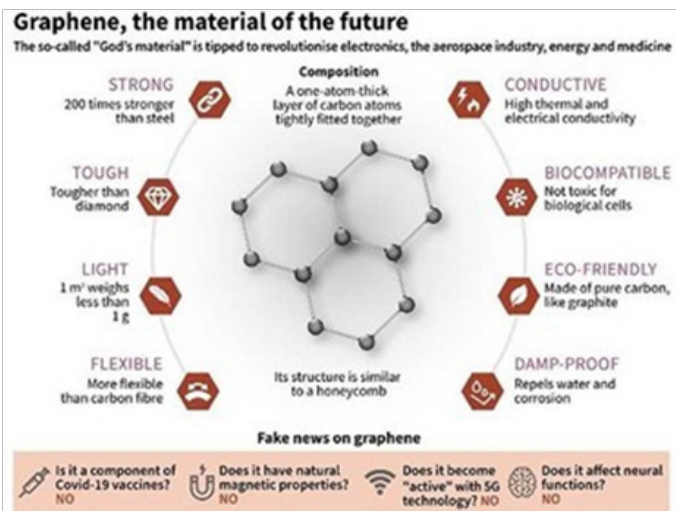
Statement 3 is incorrect because financialisation can lead to increased debt levels, not a reduction in debt.

**80. Ans: (a)**

Statement 1 is correct, as graphene is made of pure carbon, like graphite, but it has a unique structure of a one-atom-thick layer of carbon atoms.

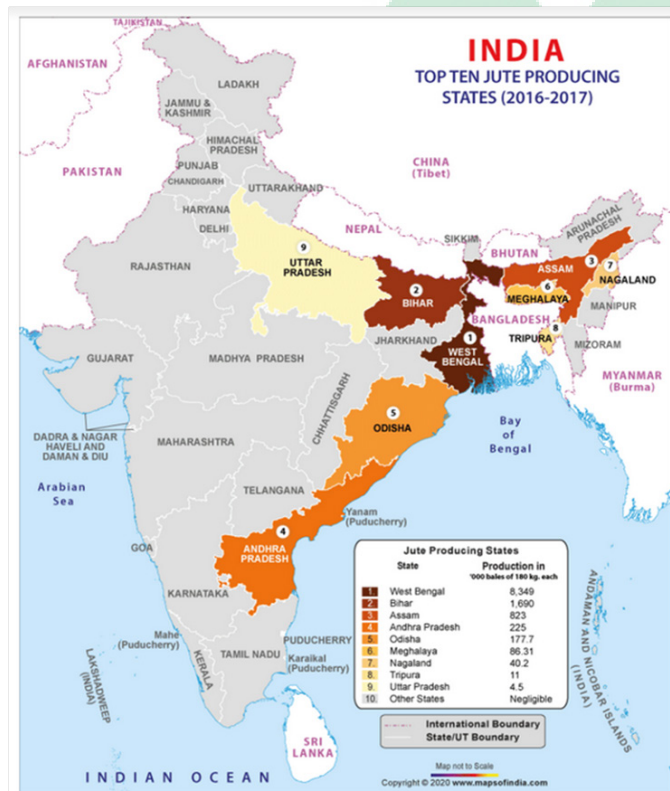
Statement 2 is also correct because graphene's properties, like high strength, conductivity, and flexibility, make it promising for applications in electronics and aerospace.

Statement 3 is incorrect as graphene does not have natural magnetic properties.



**81. Ans: (b)**

West Bengal produces over 70% of India's total jute production, making statement 1 correct. Bihar, not Andhra Pradesh, is the second-largest producer of jute, so statement 2 is incorrect. Assam and Bihar are indeed among the top five jute-producing states, making statement 3 correct.



**82. Ans: (d)**

- Signal modulation involves adjusting wave properties—amplitude (AM), frequency (FM), or phase (PM)—to carry information.
- AM (Amplitude Modulation) changes the wave height to encode signals, while FM (Frequency Modulation) alters the wave's frequency.
- PM (Phase Modulation) shifts the wave's phase for clear digital transmissions like Wi-Fi, being less affected by interference.
- FM offers better sound quality than AM, but its range is shorter.
- However, as technology advances, digital broadcasting

is replacing analog due to its efficiency and resistance to interference.

**83. Ans: (a)**

The Global Cybersecurity Index (GCI) 2024 highlights that all regions have improved in cybersecurity since 2021, with Africa showing the most significant advancement. This demonstrates the region's increased commitment to strengthening its cybersecurity infrastructure across various pillars, including legal, technical, and organizational aspects.

**84. Ans: (d)**

All statements are incorrect. The "Integrated Ocean Energy Atlas" includes a variety of marine energy resources such as solar, wind, waves, tides, ocean currents, and thermal gradients, making statement 1 incorrect. It was launched by the Ministry of Earth Sciences, not the Ministry of Renewable Energy, making statement 2 incorrect. The atlas provides annual, monthly, and daily estimates of energy resources, but not real-time data, making statement 3 incorrect.

**85. Ans: (c)**

- The Commission for Scientific and Technical Terminology (CSTT) plays a crucial role in standardizing scientific and technical terminology in Indian languages.
- Established in 1961, it aligns with the National Education Policy (NEP) 2020 by promoting technical education, including engineering and medicine, in Indian languages.
- CSTT publishes bilingual, trilingual, and multilingual glossaries, dictionaries, and journals, such as 'Vigyan Garima Sindhu' and 'Gyan Garima Sindhu'.
- The "Shabd" website, launched in March 2024, hosts 322 glossaries with over 18 million headwords across various disciplines like Humanities, Medical Sciences, Engineering, and Agriculture.
- The CSTT aims to accelerate its work using AI in the future to promote Indian languages and enhance accessibility.

**86. Ans: (a)**

The Irula tribe is classified as a Particularly Vulnerable Tribal Group (PVTG) in Tamil Nadu. They are one of the oldest tribal communities in India and are known for their unique traditions and contributions to snake venom extraction, which is crucial for the production of anti-snake venom in the country.

**87. Ans: (b)**

The WHO prequalified the MVA-BN vaccine as the first approved vaccine to combat mpox, making statement 1 correct. The vaccine can be stored at 2-8°C for up to eight weeks, making statement 3 correct. However, the vaccine shows 82% effectiveness with two doses, not 90%, making statement 2 incorrect.

**88. Ans: (c)**

Mokshagundam Visvesvaraya invented automatic gates to regulate the flow of water in reservoirs, and



he also played a crucial role in solving the water supply problem in Sukkur, a city on the banks of the Indus River, now in Pakistan. However, he did not design the Bhakra Nangal Dam in Punjab, which makes statement 2 incorrect.

**89. Ans: (d)**

- India has launched Operation Sadbhavto provide humanitarian assistance to Laos, Myanmar, and Vietnam, all severely affected by flooding from Typhoon Yagi.
- Under this mission, India has committed \$1 million in aid to Vietnam and \$100,000 to Laos.
- The Indian Navy and Air Force are actively deploying ships and aircraft to deliver relief, including food, clothing, medicines, and water purification items.
- India's Act East Policy supports its rapid response, reinforcing solidarity with ASEAN nations.

Typhoon Yagi, Asia's strongest cyclone in 2024, has displaced millions and caused widespread devastation across Southeast Asia.

**90. Ans: (b)**

The Global AI Ethics and Governance Observatory serves policymakers, academics, and private enterprises by promoting ethical AI governance, making statement 2 correct.

Statement 1 is incorrect as it does not solely focus on the private sector but aims for comprehensive AI governance across sectors.

Statement 3 is also incorrect, as the observatory provides resources to address challenges in AI governance and supports responsible AI development.

**91. Ans: (d)**

The Clean Seas Campaign is a global initiative launched by the United Nations Environment Programme (UNEP) to tackle marine plastic pollution. The campaign focuses on raising awareness, mobilizing action, and implementing solutions to reduce plastic litter in oceans and seas worldwide. It emphasizes the importance of addressing the root causes of marine pollution and engages stakeholders from governments, industries, and civil society.

**92. Ans: (b)**

Statement 1 is correct, as the Sahariya tribe traces its historical origins to the days of the Ramayana and earlier.

Statement 2 is also correct since the Sahariyas speak a dialect influenced by Hindi and Brij Bhasha.

However, statement 3 is incorrect because the Sahariya tribe practices Hinduism, not Buddhism.

**93. Ans: (c)**

The first 'teal carbon' study in India was conducted at Keoladeo National Park, Rajasthan. The study aims to understand the potential of freshwater wetlands in addressing climate adaptation and resilience, highlighting the importance of such ecosystems in regulating greenhouse gases and mitigating climate change.

**94. Ans: (a)**

The SCES was established in 2019 by Ministry of Statistics and Programme Implementation (MoSPI) and focuses on advising on survey methodology, including sampling design and instruments, as well as finalizing survey tabulation plans.

Statement 3 is incorrect because the SCES is not a permanent committee but a temporary one established to address specific critical statistical issues.

**95. Ans: (c)**

Statements 1 and 2 are correct. SiC is known for its excellent thermal conductivity, mechanical strength, and resistance to wear and oxidation, making it useful in a range of applications such as semiconductors and ballistic armor.

Statement 3 is incorrect because SiC is not a naturally occurring crystalline compound; it is synthetic.

**96. Ans: (d)**

Statement 1 is incorrect because not all bio-plastics are necessarily biodegradable or compostable. Some bio-plastics, despite being sourced from renewable resources, can behave like conventional plastics and persist in the environment.

Statements 2 and 3 are correct, as bio-plastics are made from renewable sources like corn starch or sugarcane and reduce reliance on fossil fuels, contributing to sustainability efforts.

**97. Ans: (d)**

The BepiColombo mission is a joint effort by the European Space Agency (ESA) and the Japan Aerospace Exploration Agency (JAXA). The mission was launched to study Mercury's composition, geology, and magnetic field, and is scheduled to orbit Mercury starting in 2026.

**98. Ans: (c)**

Teal carbon refers to carbon stored in non-tidal freshwater wetlands, including carbon sequestered in vegetation, microbial biomass, and organic matter. This concept focuses on the role of freshwater wetlands in mitigating climate change by regulating greenhouse gases.

**99. Ans: (b)**

Statement 1 is correct because Keoladeo National Park is located in Bharatpur, Rajasthan, and is recognized as a UNESCO World Heritage Site for its importance as a bird sanctuary.

Statement 2 is incorrect because Keoladeo National Park, along with Chilika Lake, not Vembanad Lake, was declared India's first Ramsar site in 1981.

Statement 3 is correct as the Gambhir and Banganga rivers flow through the park, providing essential water sources for its diverse ecosystem.

**100. Ans: (a)**

Keoladeo National Park is famous for hosting the rare and threatened Siberian Crane, which migrates from the northern hemisphere to breed in the park. The park is a crucial bird sanctuary and a key stopover for many migratory bird species.