

# General Studies

## Current Affair Test (September-2024)

### 1. Ans: (b)

The recent expansion of the Agricultural Infrastructure Fund (AIF) by the Union Cabinet aims to enhance the financial security and creditworthiness of Farmers' Producers Organisations (FPOs). This makes the scheme more inclusive and attractive for FPOs, which are vital agricultural collectives in India. The expansion does not focus exclusively on large agribusinesses, nor has the total budget increased to 2 lakh crore (it remains 1 lakh crore), and the fund continues to support a wide range of agricultural infrastructure projects, not just a few. Thus, option b is correct.

### 2. Ans: (b)

Statement 1: Correct. Quasars are the extremely luminous cores of distant galaxies.

Statement 2: Correct. Quasars are powered by supermassive black holes at their centers, which accrete matter and produce immense energy.

Statement 3: Incorrect. The light emitted by quasars is due to the intense gravitational energy released as matter is accreted by the supermassive black hole, not due to nuclear fusion in their outer layers. Hence, only two statements are correct.

### 3. Ans: (d)

The Chandipura virus has been linked to causing Acute Encephalitis Syndrome (AES), particularly affecting children. The current outbreak is not in the southern states but primarily in Gujarat and some cases in Rajasthan. The World Health Organization (WHO) has not recommended any travel or trade restrictions, and there is no vaccine available for the virus currently. Hence, option d is correct.

### 4. Ans: (a)

Statement 1: Correct. The northern bald ibis was once extinct in Europe due to extensive hunting.

Statement 2: Correct. The species has been revived in certain areas through breeding and rewilding efforts.

Statement 3: Incorrect. The northern bald ibis is currently classified as "Endangered" by the IUCN, not "Critically Endangered." Hence, only statements 1 and 2 are correct.

### 5. Ans: (d)

A parabolic concentrator is designed to focus sunlight onto a small area, known as the receiver, to generate very high temperatures. This intense heat can be used for various applications, including electricity generation or providing heat for industrial processes. It does not Leads to Success directly convert sunlight

into electricity like photovoltaic cells, nor does it store or diffuse sunlight.

### 6. Ans: (c)

The Central Financial Assistance (CFA) approved by the Union Cabinet supports the equity participation of North-Eastern state governments in viable hydroelectric projects. It does not cover 100% of the equity; it only covers up to 24% with a cap of 750 crore per project and is exclusive to projects in the North Eastern Region (NER).

### 7. Ans: (a)

Statement 1: Correct. The Pacific Policing Initiative (PPI) includes the establishment of a central police development hub in Brisbane, Australia.

Statement 2: Correct. The initiative is primarily funded by Australia but driven by the Pacific Island countries.

Statement 3: Incorrect. The PPI represents a shift towards a Pacific-led approach to security, contrasting with past initiatives that were dominated by external powers. Thus, only statements 1 and 2 are correct.

### 8. Ans: (b)

Statement 1: Incorrect. The BioE3 Policy is not limited to healthcare and pharmaceuticals; it also includes sectors like agriculture, environmental conservation, and industrial biotechnology.

Statement 2: Correct. The policy includes provisions for capacity building through internships and fellowships.

Statement 3: Correct. Marine and space research are among the sectors covered under the policy. Hence, only two statements are correct.

### 9. Ans: (a)

The National Pension Scheme (NPS) replaced the Old Pension Scheme (OPS) for government employees who joined after January 1, 2004. The NPS is a contributory, market linked scheme without any guaranteed pension amount, unlike the OPS.

### 10. Ans: (c)

The Agricultural Infrastructure Fund (AIF) is part of the Atma Nirbhar Bharat campaign, aimed at promoting self-reliance in India. It is not limited to post-harvest infrastructure, provides loans and credit facilities (not just grants), and includes financing for Farmers' Producers Organisations (FPOs).

### 11. Ans: (c)

The National Medical Register (NMR) is a comprehensive digital database for all registered allopathic (MBBS) doctors in India, mandated under

Section 31 of the National Medical Commission (NMC) Act, 2019. Managed by the Ethics & Medical Registration Board (EMRB), it includes the names, addresses, and qualifications of licensed medical. The NMR aims to enhance the digital healthcare ecosystem by ensuring transparent access to qualified medical professionals.

**12. Ans: (c)**

Bharat Biotech's Hillchol (BBV131) is an oral cholera vaccine developed in partnership with Hilleman Labs. It addresses the global shortage of Oral Cholera Vaccines (OCVs) and aims to prevent cholera, a severe diarrheal disease caused by the bacterium *Vibrio cholerae*. This vaccine is a significant contribution to global health, particularly in regions where cholera is endemic.

**13. Ans: (d)**

Indian Immunologicals Ltd (IIL), in collaboration with Griffith University, developed a needle-free intranasal COVID-19 booster vaccine using codon deoptimization technology. This involves modifying the genetic code of the virus by increasing the frequency of underrepresented codon pairs, making the virus less virulent while still effective in stimulating an immune response.

**14. Ans: (b)**

Statement 1: Incorrect. While Fixed-Dose Combinations (FDCs) are combinations of two or more drugs in a single dose, they are not always used to enhance therapeutic effects; some may lack therapeutic benefits. Statement 2: Correct. The ban on 156 FDC drugs by the Indian government was due to concerns over their irrational use and lack of therapeutic benefit.

Statement 3: Correct. Overuse of FDCs, especially those with antibiotics, can contribute to antibiotic resistance, a major global health issue.

**15. Ans: (a)**

Statement 1: Correct. The Unified Lending Interface (ULI) uses advanced technologies like APIs and secure digital platforms.

Statement 2: Incorrect. ULI does not offer government-subsidized interest rates; it focuses on simplifying and standardizing lending processes.

Statement 3: Correct. ULI aims to integrate and standardize lending processes across different financial institutions.

**16. Ans: (b)**

Statement 1: Incorrect. Solar Paraboloid Technology is not a type of photovoltaic technology; it is a form of Concentrating Solar Power (CSP).

Statement 2: Correct. It uses parabolic mirrors to concentrate sunlight onto a receiver, generating high temperatures.

Statement 3: Correct. This technology offers higher

efficiency than traditional photovoltaic systems

**17. Ans: (d)**

Canara Bank issued India's first Additional Tier I perpetual bonds following recent rule changes, attracting strong investor interest. These bonds do not have a fixed maturity date, and investors receive interest indefinitely.

**18. Ans: (d)**

Statement 1: Correct. The NMR is managed by the Ethics & Medical Registration Board (EMRB) of the National Medical Commission (NMC).

Statement 2: Incorrect. The NMR does not require doctors to submit annual reports.

Statement 3: Correct. The NMR aims to enhance the digital healthcare ecosystem and ensure transparent access to quality medical professionals.

**19. Ans: (b)**

Statement 1: Incorrect. Perpetual bonds are considered debt instruments, not equity.

Statement 2: Correct. They provide interest payments indefinitely, with no fixed maturity date. Statement 3: Incorrect. Perpetual bonds do not have a fixed period for principal repayment; they exist indefinitely.

**20. Ans: (a)**

Statement 1: Correct. Cholera is a bacterial disease causing rapid fluid loss and severe dehydration.

Statement 2: Correct. Cholera is primarily transmitted through contaminated water or food.

Statement 3: Incorrect. Rehydration therapy is the primary treatment for cholera, not antibiotics.

**21. Ans: (c)**

Statement 1: Incorrect. Literacy under the New India Literacy Programme (NILP) is not limited to just the ability to read and write. It includes additional skills such as computing with comprehension, digital literacy, and financial literacy.

Statement 2: Incorrect. Full literacy under NILP is defined as achieving 95% literacy in a State/UT, which is considered equivalent to 100%.

Statement 3: Correct. The NILP has expanded the definition of literacy to include critical skills like digital and financial literacy. Therefore, the correct answer is (c) 3 only.

**22. Ans: (c)**

The Hollongapar Gibbon Sanctuary is known for its diverse vegetation structure. The upper canopy is dominated by hollong trees, while the middle canopy is characterized by nahar trees. The lower canopy contains various evergreen shrubs and herbs. Therefore, the correct answer is (c).

**23. Ans: (d)**

Mass wasting in Tibet's Sedongpu Gully is primarily due to warming temperatures and seismic activity.

Since 2017, these factors have led to frequent landslides, adding debris to the Yarlung Tsangpo River, which can cause river choking and potential flash floods downstream. Options like overgrazing, mining, and deforestation are not the primary contributors in this context. Thus, the correct answer is (d).

**24. Ans: (b)**

In India, the creation, alteration, or abolition of districts is within the purview of state governments. They can achieve this through executive orders or by passing laws in the State Assembly. No approval from Parliament, involvement of the President of India, or constitutional amendment is required. Therefore, the correct answer is (b).

**25. Ans: (a)**

Statement 1: Correct. NILP is a centrally sponsored scheme aimed at educating nonliterate individuals aged 15 and above.

Statement 2: Correct. The program targets females and backward states to reduce literacy gaps.

Statement 3: Incorrect. The NILP does not focus primarily on vocational training for youth in urban areas. Thus, the correct answer is (a) 1 and 2 only.

**26. Ans: (a)**

Landslides involve the rapid movement of large amounts of soil, rock, and debris down a slope, triggered by factors such as rainfall, earthquakes, or construction activities. The other options incorrectly describe the nature of different types of mass wasting. Therefore, the correct answer is (a).

**27. Ans: (b)**

Leptospirosis is a bacterial zoonotic disease primarily transmitted through contact with water contaminated by the urine of infected animals, especially rodents. It is common in monsoon seasons due to water contamination. The disease is not viral, does not spread easily through human contact, and is not a fungal infection. Thus, the correct answer is (b).

**28. Ans: (b)**

The process of renaming districts involves the state government submitting a proposal to the Central Government for approval. The Central Government seeks clearance from various departments before granting approval. This does not require a constitutional amendment or approval from the Supreme Court. Hence, the correct answer is (b).

**29. Ans: (a)**

Leptospirosis is primarily spread through contact with rodents. Preventing rats from entering homes by filling holes is an effective preventive measure. Options like wearing masks, using hand sanitizers, or consuming probiotics are not specifically targeted at preventing leptospirosis. Therefore, the correct answer is (a).

**30. Ans: (d)**

The western hoolock gibbon is classified as Endangered, and the eastern hoolock gibbon is classified as Vulnerable by the IUCN Red List. Both species are protected under Schedule I of the Indian Wildlife Protection Act, 1972, providing them with the highest level of protection. Other options incorrectly describe their conservation status or legal protection. Thus, the correct answer is (d).

**31. Ans: (c)**

The Supreme Court ruled that for an act of insult or intimidation to qualify as an offence under the SC/ST (Prevention of Atrocities) Act, 1989, the insult or intimidation must be based on the victim's caste. Not every insult or act of intimidation qualifies; the caste element must be the root cause of the offence for it to be considered under this Act.

**32. Ans: (a)**

Pistol shrimp (family Alpheidae) exhibit Sonoluminescence by snapping their claws to create a high-speed water jet, which forms a bubble. As the bubble collapses, it produces a loud sound and a flash of light, demonstrating Sonoluminescence.

**33. Ans: (c)**

Lithium mining in the Atacama Desert has been linked to significant environmental issues, particularly contamination of local ecosystems and the exacerbation of water scarcity. The desert is already one of the driest places on Earth, and lithium extraction further depletes its limited water resources, affecting local biodiversity.

**34. Ans: (a)**

The Great Nicobar Island (GNI) Project, a 72,000-crore initiative, is being piloted by NITI Aayog. This project focuses on the holistic development of the island, including infrastructure to enhance its strategic and economic importance.

**35. Ans: (a)**

The PM-JANMAN campaign aims to ensure 100% saturation of government schemes in PVTG areas. It targets the most marginalized tribal communities to provide them with essential government services, aiming to bridge developmental gaps.

**36. Ans: (d)**

Sonoluminescence occurs when a small bubble in a liquid rapidly collapses due to powerful sound waves, creating extremely high temperatures and resulting in a flash of light.

**37. Ans: (d)**

The Great Nicobar Island (GNI) Project does not include the construction of a mega shopping mall complex. The project focuses on infrastructure such as a transshipment port, a dual-use military-civil international airport, a power plant, and a township.



**38. Ans: (b)**

The SC/ST (Prevention of Atrocities) Act, 1989 specifically punishes offences like manual scavenging, which is considered a severe form of discrimination against SC/ST communities.

**39. Ans: (b)**

The area designated for development in the Great Nicobar Island (GNI) Project is near Campbell Bay National Park, requiring careful planning to balance development with conservation.

**40. Ans: (d)**

The IEC campaign under PM-JANMAN includes activities such as distributing entitlements, organizing health camps, and conducting awareness campaigns. The development of urban housing projects is not part of this campaign, which is mainly focused on rural and remote tribal areas.

**41. Ans: (a)**

National Space Day on August 23 was designated to honor the successful Chandrayaan-3 mission, which marked a historic lunar landing, making India the fourth country to land on the Moon and the first to land in the Moon's southern polar region. This day underscores India's advancements in space exploration and its contributions to global space science.

**42. Ans: (c)**

Botswana is a landlocked country in Southern Africa bordered by South Africa, Namibia, and Zimbabwe, and connected to Zambia via the Kazungula Bridge. Explanation: Botswana is a landlocked country located in Southern Africa. It is bordered by South Africa to the south and southeast, Namibia to the west and north, Zimbabwe to the northeast, and connected to Zambia by the Kazungula Bridge over the Zambezi River. The other options incorrectly describe Botswana's location and borders.

**43. Ans: (b)**

Statement 1: Incorrect. AICE focuses on the creative economy but does not primarily emphasize IT-based solutions for artisans. It supports traditional sectors like handlooms, crafts, and other creative industries.

Statement 2: Correct. The creative economy includes sectors such as film, music, design, and fashion, which are based on creativity and culture.

Statement 3: Incorrect. The initiative affects a significant portion of India's workforce (about 8%), not just those in the tech industry.

**44. Ans: (d)**

RHUMI-1, developed by Space Zone India, is India's first reusable hybrid rocket. It is intended to collect data on environmental factors, such as cosmic radiation, UV radiation, and air quality, to contribute to research on climate change and atmospheric conditions.

**45. Ans: (c)**

In mRNA vaccines, mRNA provides instructions for

cells to produce specific viral proteins, such as the spike protein of the coronavirus. These proteins then prompt the immune system to produce antibodies and activate T cells, conferring immunity without integrating into the host genome.

**46. Ans: (a)**

It is a seasonal floodplain that becomes a lush animal habitat during floods. o Explanation: The Okavango Delta is a large inland delta that experiences seasonal flooding, transforming it into a lush habitat teeming with wildlife. It is a critical area for biodiversity conservation in Botswana.

**47. Ans: (d)**

The Tanager-1 satellite, launched by NASA, aims to track methane and carbon dioxide emissions using advanced imaging spectrometer technology. This mission helps address global warming by targeting potent greenhouse gases like methane.

**48. Ans: (b)**

Statement 1: Incorrect. mRNA vaccines do not incorporate viral mRNA into the host DNA.

Statement 2: Correct. The spike protein produced from mRNA translation is recognized by the immune system, leading to the production of antibodies and activation of T cells.

Statement 3: Correct. Antibodies produced after vaccination bind to the spike protein, preventing the virus from entering cells.

**49. Ans: (b)**

Statement 1: Incorrect. Blueberries grow in temperate climates and prefer acidic, well drained soils. Statement 2: Correct. Anthocyanins in blueberries help protect cells from oxidative stress, classifying them as a superfood.

Statement 3: Correct. Regular consumption of blueberries is linked to improved heart health, brain function, and reduced cancer risk.

**50. Ans: (d)**

Methane is a highly potent greenhouse gas, contributing significantly to global warming. It also forms ground-level ozone, a pollutant linked to respiratory issues and premature deaths, highlighting its environmental and health impacts.

**51. Ans: (b)**

India's schoolgirls are quietly leading a cycling revolution, driven by state-run free bicycle schemes. In rural areas, cycling among girls has more than doubled over a decade, boosting school attendance and reducing dropout rates.

This movement, though underreported, is transforming lives, especially in states like Bihar, West Bengal, Assam, and Chhattisgarh, where bicycles are empowering girls with mobility and education.

### Impact of the Cycling Revolution:

1. Increased School Attendance: More girls are attending school regularly.
2. Reduced Dropout Rates: Fewer girls are dropping out of school.
3. Empowerment: Enhanced confidence and mobility for girls.
4. Gender Gap Reduction: A rise in cycling in India had occurred among rural girls – increasing more than two times from 4.5% in 2007 to 11% in 2017 – narrowing the gender gap in education and transportation.
5. Educational Access: Improved access to education in rural areas.
6. Economic Mobility: Potential for better employment opportunities in the future.
7. Social Change: Challenging traditional gender roles and promoting self-reliance.

### 52. Ans: (d)

The North Eastern Handicrafts and Handlooms Development Corporation (NEHHDC) has achieved the Oeko-Tex certification for Eri Silk, the world's only vegan silk.

- This certification, awarded directly from Germany, highlights Eri Silk's ethical and eco-friendly production process, where the moth naturally exits the cocoon, unlike other silk types where the moth is killed.
- The Oeko-Tex certification confirms that Eri Silk is free from harmful substances and produced under environmentally friendly conditions.
- This accomplishment enhances the global recognition of Eri Silk, a Geographical Indication (GI) product of Assam, and paves the way for its expansion into international markets.

### 53. Ans: (c)

- The directive issued by the Directorate General of Health Services (DGHS) mandates that heads of government hospitals are responsible for filing a First Information Report (FIR) within six hours of any violence against healthcare workers on duty.
- This policy places the onus on hospital leadership to take immediate action in cases of violence, reflecting a systemic approach to addressing the issue.
- By designating hospital heads as the responsible parties for initiating legal proceedings, the directive aims to ensure a swift and standardized response to incidents of violence against healthcare workers, potentially deterring such acts and providing better protection for medical staff.

### 54. Ans: (b)

- Statement 1 is correct as an FIR is a written document prepared by the police upon receiving information about a cognizable offense.
- Statement 3 is correct as per the directive from

the Union Health Ministry, which requires FIRs to be filed within six hours of any violence against healthcare workers on duty.

- Statement 2 is incorrect because public health is a State subject, and there is no specific Central law for preventing violence against healthcare workers.

### 55. Ans: (d)

The Department of Pension and Pensioners' Welfare (DOPPW) introduced "Bhavishya," a centralized pension processing software, to address delays, errors, and financial losses in pension processing for central government employees.

- The software integrates 99 Ministries/Departments, 1020 Offices, and 8320 Drawing and Disbursing Officers (DDOs), with over 2,50,845 Pension Payment Orders (PPOs) issued by August 2024. "Bhavishya" streamlines the pension process by auto-registering retirees, enforcing strict timelines, and providing transparency and accountability.
- The system automates pension calculations, offers real-time updates via email/SMS, and enables paperless processing through e-PPOs, which are integrated with the Public Financial Management System (PFMS) and banks.
- The software also supports Digilocker for easy access to pension documents and issues pensioner identity cards.

### 56. Ans: (c)

The Green Tug Transition Program (GTTP), is a significant initiative aimed at replacing diesel-powered harbor tugs in India with zero-emission, environmentally friendly alternatives.

- A tug is a particular class of boat which helps mega-ships enter or leave a port.
- Major ports will procure or charter green tugs powered by emerging technologies such as battery-electric, hybrid, methanol, and green hydrogen.
- The program aligns with India's broader goals for sustainability and innovation in the maritime sector, as outlined in the Maritime India Vision 2030 and the Maritime Amrit Kaal Vision 2047.
- These visions aim to reduce greenhouse gas emissions, increase the use of renewable energy in ports, and promote domestic manufacturing under the 'Make in India' initiative. By 2040, all tugs operating in Indian Major Ports are expected to transition to green technologies, marking a significant step towards a greener, more sustainable maritime future for India.

### 57. Ans: (a)

Statement 2 is incorrect.

Increased prokaryote dominance in warming oceans could reduce fish populations, which are crucial for global food supply. However, this dominance is likely to reduce, not enhance, the ocean's ability to absorb carbon emissions, making statement 2 incorrect.

**58. Ans: (a)**

Kazhuveli Bird Sanctuary is located on the Coromandel Coast in Tamil Nadu, connected to the Bay of Bengal via Uppukalli Creek and Yedanthittu estuary. It plays a significant ecological role but is not part of the Western Ghats biodiversity hotspot.

**59. Ans: (c)**

The 90 MW Omkareshwar Floating Solar Project, commissioned by SJVN Green Energy Limited, is located in Khandwa, Madhya Pradesh. It is one of the largest floating solar initiatives in Central and North India.

**60. Ans: (a)**

Statements 2 and 3 are correct. DNA profiling is increasingly accurate but can be affected by issues like sample contamination, making it unreliable as the sole basis for establishing guilt or innocence. Statement 1 is incorrect because DNA profiling involves analyzing specific locations in the 0.1% of human DNA that varies between individuals, not the entire genome.

**61. Ans: (b)**

The primary objective of the FSSAI's initiative is to develop and validate methods for detecting microplastics in various food products and to assess their prevalence and exposure levels among consumers in India.

**62. Ans: (a)**

- Statement 1 is correct: The Arogya Maitri Disaster Management Cube is indeed a part of the Indian Army's BHISHM initiative, which stands for Bharat Health Initiative for Sahyog, Hita, and Maitri.
- Statement 2 is correct: The cube integrates Artificial Intelligence (AI) and data analytics to enable effective coordination and real-time monitoring during disaster management operations, which enhances decision-making and response efforts.
- Statement 3 is incorrect: Contrary to the statement, the cube's components are designed to be lightweight and transportable, allowing them to be easily moved by hand, cycle, or drone without the need for heavy machinery.

**63. Ans: (b)**

- Statement 1 is correct: The deep-winter heatwave in Antarctica could contribute to a reduction in the Antarctic Ice Sheet, which would subsequently lead to rising global sea levels.
- Statement 2 is correct: The heatwave could also disrupt the global ocean circulation system (such as the thermohaline circulation), which is crucial for regulating global climate patterns.
- Statement 3 is incorrect: The deep-winter heatwave is typically associated with a weakening of the polar vortex, not a strengthening. A weakened polar vortex can lead to warmer temperatures in polar regions, rather than colder global temperatures.

**64. Ans: (a)**

- Statement 1 is incorrect: While Uttar Pradesh has several Ramsar sites, it is Tamil Nadu that currently holds the title for the highest number of Ramsar sites in India.
- Statement 2 is correct: Both the Nanjarayan Bird Sanctuary and the Kochuvelli Bird Sanctuary are located in Tamil Nadu.
- Statement 3 is incorrect: The Tawa Reservoir, which was recently added as a Ramsar site, is located in Madhya Pradesh, not in Uttar Pradesh.

**65. Ans: (b)**

- Statement 1: Correct – CAS operates under the International Council of Arbitration for Sport (ICAS).
- Statement 2: Correct – CAS adapts procedural rules to the sports world's needs.
- Statement 3: Incorrect – CAS does not have the authority to modify the rules of international sports federations.

**66. Ans: (b)**

- Statement 1: Incorrect – A "SuperMoon" occurs when the moon is at its closest point to Earth, not its farthest.
- Statement 2: Correct – A "Blue Moon" is the second full moon in a calendar month or the third full moon in a season with four full moons.
- Statement 3: Incorrect – The occurrence of a Super Moon and Blue Moon together is a rare event, not common.

**67. Ans: (a)**

- Objective: The mission aims to map Jupiter's moons and investigate subsurface water bodies for potential habitability.

**68. Ans: (c)**

- Anaphylaxis: A rapid release of chemicals by the immune system that can cause the body to go into shock.
- Example triggers: Peanuts or bee stings.
- Recent development: The FDA approved Neffy, a nasal spray for treating severe allergic reactions, offering an alternative to traditional injectors like EpiPen.

**69. Ans: (d)**

- Statement 1: Correct – The FPS Sahay application was launched for paperless financing for Fair Price Shop dealers.
- Statement 2: Correct – Mera Ration App 2.0 was introduced to enhance services for beneficiaries.
- Statement 3: Correct – The program includes NABL accreditation of laboratories to improve food quality control in the Public Distribution System (PDS).

**70. Ans: (b)**

- Statement 1: Incorrect – Tornadic waterspouts can be as destructive as tornadoes.
- Statement 2: Correct – Tornadic waterspouts are



associated with severe thunderstorms and can cause significant destruction.

- Statement 3: Correct – Fair-weather waterspouts are usually weaker and form during calm conditions.

**71. Ans: (d)**

Prokaryotes, including bacteria and archaea, play a vital role in supporting marine food chains and balancing carbon emissions. Despite the warming of oceans, prokaryotes are expected to decline less than other marine life, potentially increasing their dominance in marine ecosystems.

**72. Ans: (c)**

The Small Satellite Launch Vehicle (SSLV) provides a cost effective, flexible, and rapid solution for satellite launches, designed to carry payloads between 10 to 500 kg, making it suitable for a variety of space missions.

**73. Ans: (c)**

Scientists discovered liquid water deep within Mars' crust using data from NASA's Mars Insight Lander. This discovery, at depths of 10 to 20 kilometers, suggests water from Mars' ancient rivers and lakes seeped into the crust billions of years ago.

**74. Ans: (a)**

- Zoopharmacognosy is the study of how animals self-medicate using natural substances. This behavior has been observed in species like primates, elephants, and dogs, using plants and other natural resources to treat infections and maintain health.

**75. Ans: (d)**

- Statement 1: Correct – The Rajasthan Atomic Power Station is the only operational nuclear power plant in Rajasthan.
- Statement 2: Correct – The Kudankulam Nuclear Power Plant, located in Tamil Nadu, is the southernmost nuclear power plant in India.
- Statement 3: Correct – The Narora Atomic Power Station is located in Uttar Pradesh.

**76. Ans: (a)**

- The new genome-editing tool is based on a protein called ISDra2TnpB from the bacterium *Deinococcus radiodurans*, developed by researchers from ICAR National Rice Research Institute and Pennsylvania State University. It holds promise for agricultural applications.

**77. Ans: (d)**

- Statement 1: Correct – Tensions in the South China Sea could disrupt the global supply chain.
- Statement 2: Correct – Increased tensions may lead to rerouting vessels, resulting in higher shipping costs.
- Statement 3: Correct – Disruption in the South China Sea could significantly reduce the global transport of petroleum products.

**78. Ans: (b)**

- KAPS-4 at Kakrapar Atomic Power Station (KAPS) in Gujarat is India's second indigenous 700 MW Pressurised Heavy Water Reactor (PHWR) to operate at full capacity, marking a milestone in India's nuclear power capabilities.

**79. Ans: (b)**

- Statement 1: Correct – The ONDC aims for inclusivity and access for sellers, particularly small businesses and MSMEs.
- Statement 2: Incorrect – ONDC is focused on decentralizing e-commerce, not centralizing it.
- Statement 3: Correct – ONDC provides more independence and choices for consumers.
- Statement 4: Incorrect – ONDC is a not-forprofit entity, not focused on profit maximization.

**80. Ans: (c)**

- Approximately 40% of the world's petroleum products are transported through the South China Sea annually.

Any disruption in this region could have a significant impact on global energy supplies and prices.

**81. Ans: (b)**

- The Alpha Particle X-ray Spectrometer (APXS) on the Pragyan Rover of Chandrayaan-3 provided the first in-situ elemental abundance measurements of lunar soil in the South Polar Region of the Moon. This supports the Lunar Magma Ocean (LMO) hypothesis and provides insights into the Moon's primordial crust.

**82. Ans: (b)**

- Statement 1: Correct – The Scarborough Shoal is a disputed territory between China and the Philippines.
- Statement 2: Correct – The Spratly Islands are claimed by multiple countries, including China, Vietnam, and the Philippines.
- Statement 3: Incorrect – Taiwan also makes claims in the South China Sea, including over the Spratly Islands And the Paracel Islands.

**83. Ans: (a)**

- Pair 1: Correct – The Kaiga Generating Station is located in Karnataka.
- Pair 2: Incorrect – The Kakrapar Atomic Power Station is located in Gujarat, not Maharashtra.
- Pair 3: Incorrect – The Tarapur Atomic Power Station is located in Maharashtra, not Uttar Pradesh.

**84. Ans: (a)**

- Statement 1: Incorrect – The Hayflick limit refers to the maximum number of times a normal human cell can divide before cell division stops, not the minimum.
- Statement 2: Correct – The Hayflick limit plays a crucial role in aging and the development of age-related diseases because as cells reach their

division limit, they enter a state of senescence, contributing to aging.

**85. Ans: (d)**

- Location: The Banni Grasslands are located in Gujarat, specifically in the Kachchh district. These grasslands are one of the largest tropical grasslands in Asia and are known for their unique ecosystem and wildlife.

**86. Ans: (a)**

- Statement 1: Correct – Vaccine-derived poliovirus is a documented variant of poliovirus that originates from the strain used in the oral polio vaccine (OPV).
- Statement 2: Correct – The excreted vaccine virus can circulate, undergo genetic changes, and in under-immunized populations, it can cause paralysis.

Thus, both statements are correct, and Statement II is the correct explanation for Statement I. The correct answer is a) Both Statement-I and Statement-II are correct and Statement II is the correct explanation for Statement-I.

**87. Ans: (a)**

- Statement 1: Incorrect – Senior advocates are designated under Section 16 of the Advocates Act 1961, not the Bar Council of India Act.
- Statement 2: Incorrect – A senior advocate is not permitted to appear without an Advocate-on-record or junior advocate.
- Statement 3: Correct – A senior advocate shall not accept briefs or instructions directly from a client.

Thus, only Statement 3 is correct. The correct answer is (a) Only one.

**88. Ans: (b)**

- Statement 1: Correct – India hosted the inaugural Voice of Global South Summit (VOGSS) in January 2023, with the second edition in November 2023.
- Statement 2: Incorrect – The theme of the 3rd Voice of Global South Summit is "An Empowered Global South for a Sustainable Future," not "Century of the Global South."

Thus, the incorrect statement is 2 only. The correct answer is b) 2 only.

**89. Ans: (b)**

- Statement 1: Correct – Antihyper Hydrogen-4 is made up of an antiproton, two antineutrons, and one antihyperon (a baryon containing a strange quark). It was discovered at the Relativistic Heavy Ion Collider (RHIC).
- Statement 2: Correct – Both hyperhydrogen-4 and its antimatter counterpart antihyper hydrogen-4 seem to wink out of existence quickly, and there was no significant difference in their lifetimes. Thus, both statements are correct, but Statement II is not the explanation for Statement I. The correct answer is b) Both Statement-I and Statement-

II are correct and Statement II is not the correct explanation for Statement-I.

**90. Ans: (b)**

- Statement 1: Correct – Atomic clocks are the most precise timekeeping devices, critical for applications like GPS systems, telecommunications, and scientific research.
- Statement 2: Correct – These clocks measure time using the resonant frequencies of atoms, such as cesium-133.
- Statement 3: Incorrect – Cesium atomic clocks are common but not the most accurate. Hydrogen maser atomic clocks are known to be more accurate than cesium clocks.

Thus, only two statements are correct. The correct answer is b) Only two.

**91. Ans: (c)**

- ISDr2TnpB is a genome editor. It is a protein-based tool used for genome editing, potentially revolutionizing the field of genetic research.

Thus, the correct answer is c) Genome editor.

**92. Ans: (d)**

- Statement 1: Incorrect – Quantum nonlocality occurs due to entanglement, not superposition, whereby particles become permanently correlated and lose their individuality.
- Statement 2: Correct – Quantum nonlocality describes the ability of objects to instantaneously know about each other's state, even when separated by large distances.

Thus, the correct answer is d) Statement-I is incorrect but Statement-II is correct.

**93. Ans: (a)**

- Statement 1: Correct – The Joint Consultative Machinery (JCM) is a platform for constructive dialogue between the government as an employer and the employees.
- Statement 2: Incorrect – The scheme is nonstatutory, mutually agreed upon between the staff side and the official side.
- Statement 3: Incorrect – The scheme does not cover all regular civil employees of the Central Government; certain classes, such as Class-I services and police personnel, are Excluded. Thus, only one statement is correct. The correct answer is a) Only one.

**94. Ans: (b)**

- Statement 1: Correct – Diamonds form in the Earth's mantle and are brought to the surface through volcanic activity.
- Statement 2: Incorrect – The US is the largest producer of synthetic industrial diamonds, not Botswana. Thus, the incorrect statement is 2 only.

The correct answer is b) 2 only.



**95. Ans: (c)**

- Statement 1: Correct – A glacial lake typically forms at the foot of a glacier, but may also form on, in, or under it.
- Statement 2: Correct – Most glacial lakes form when a glacier retreats and meltwater fills the hole left behind.

Thus, both statements are correct. The correct answer is c) Both 1 and 2.

**96. Ans: (a)**

**Indian Remote Sensing (IRS) Satellites:**

- Statement 1: Correct – IRS satellites are used for the assessment of crop productivity.
- Statement 2: Correct – IRS satellites are used for locating groundwater resources.
- Statement 3: Correct – IRS satellites aid in mineral exploration.
- Statement 4 (Telecommunications): Incorrect – IRS satellites are not primarily used for telecommunications; this is typically done by communication satellites.
- Statement 5 (Traffic Studies): Incorrect – IRS satellites are not generally used for traffic studies.

Thus, the correct answer is (a) 1, 2 and 3 only.

**97. Ans: (a)**

- Statement 1: Correct – PSLVs are used for Earth resources monitoring, while GSLVs are designed mainly for communication satellites.
- Statement 2: Incorrect – Satellites launched by PSLV do not appear to remain permanently fixed in the same position in the sky; this is a characteristic of geostationary satellites, which are launched by GSLVs.
- Statement 3: Incorrect – GSLV Mk III is a three-staged launch vehicle, not fourstaged. It uses solid rocket motors in the first stage and liquid rocket

engines in the second stage, while the third stage uses a cryogenic engine.

Thus, the correct answer is (a) 1 only.

**98. Ans: (a)**

The G20 comprises Argentina, Australia, Brazil, Canada, China, EU, France, Germany, India, Indonesia, Italy, Japan, Mexico, Russia, Saudi Arabia, South Africa, South Korea, Turkey, UK and USA. Hence Option (a) is correct.

**99. Ans: (c)**

- Statement 1: Correct – The Mangalyaan mission launched by ISRO is also known as the Mars Orbiter Mission.
- Statement 2: Incorrect – While Mangalyaan made India the first Asian country to reach Mars, India was the fourth space agency to successfully place a spacecraft in Mars orbit after the USA, Soviet Union, and European Space Agency.
- Statement 3: Correct – Mangalyaan made India the only country to be successful in making its spacecraft orbit Mars on its very first attempt.

Thus, the correct answer is (c) 1 and 3 only.

**100. Ans: (a)**

- Statement 1: Correct – A country that becomes a member of the Nuclear Suppliers Group (NSG) gains access to the latest and most efficient nuclear technologies from other member countries, aiding in peaceful nuclear energy development.
- Statement 2: Incorrect – Membership in the NSG does not automatically make a country a member of the Treaty on the NonProliferation of Nuclear Weapons (NPT).

These are separate frameworks with distinct membership criteria.

Thus, the correct answer is (a) 1 only.