

CURRENT AFFAIRS TEST SERIES- CSE PRELIMS 2024**Key with Explanation**

1.	<p>C</p> <p>Why in News?</p> <p>Recently, a mysterious influenza-like illness termed as Walking Pneumonia has gripped school children in China.</p> <p>The outbreak's exact cause is unknown, but medical experts speculate it might be linked to mycoplasma pneumoniae, a common bacterial infection known as 'walking pneumonia.'</p> <p>Chinese authorities assert it involves familiar pathogens like mycoplasma pneumoniae, adenovirus, and influenza virus, ruling out novel pathogens like Severe Acute Respiratory Syndrome (SARS) coronavirus.</p> <p>What is Walking Pneumonia?</p> <p>About:</p> <p>Walking pneumonia, also known as atypical pneumonia, is a milder form of pneumonia caused by bacteria like Mycoplasma pneumoniae. Statement 2 is correct.</p> <p>It's termed "walking" pneumonia because its symptoms are often mild enough that individuals can continue their daily activities without requiring bed rest or hospitalization. Statement 1 is correct.</p> <p>The condition is more prevalent among children, particularly those aged 5 to 15, who are in close contact at schools and can easily transmit the infection to family members. Statement 3 is correct.</p> <p>Transmission:</p> <p>Transmission occurs through airborne droplets from coughing, sneezing, or talking, making close contact a significant factor in spreading the infection.</p> <p>Symptoms:</p> <p>Typical symptoms include a persistent cough, fever, sore throat, headache, runny nose, ear pain, and sometimes chest discomfort due to coughing.</p>	<p>Treatment:</p> <p>Treatment typically involves antibiotics to target the specific bacteria causing the infection.</p> <p>2. B</p> <p>Indian Railways has introduced a cutting-edge technology named 'Gajraj' to prevent elephant accidents on railway tracks. It uses an AI-based algorithm and a network of sensitive optical fibre cables to detect elephants getting close to railway tracks. Statement 2 is correct. It aims to address the issue of elephant fatalities resulting from train accidents. Statement 1 is incorrect.</p> <p>Working:</p> <p>Gajraj Suraksha senses pressure waves generated by the movement of elephants along the tracks. As elephants move, the optical fibres detect vibrations caused by their footsteps.</p> <p>These vibrations trigger signals within the optical fibre network, enabling the system to identify the presence of elephants up to 200 meters ahead of their arrival on the track.</p> <p>The OFC-based Intrusion Detection System works by sending alarms to station masters whenever movement is detected along the tracks. The network is designed in such a way that it can track the movement of the elephant with great accuracy and report it to nearby station masters.</p> <p>This allows them to promptly inform locomotive drivers in the affected areas. This quick communication ensures that trains can be slowed down or stopped, preventing potential collisions with elephants. Indian railway is planning to introduce this system in West Bengal, Odisha, Jharkhand, Assam, Kerala, certain parts of Chhattisgarh, and Tamil Nadu.</p>
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3.	<p>B</p> <p>Under Article 281 of the Constitution, the President is required to cause laying of the Finance Commission report before each House of Parliament along with an explanatory note and the action taken by the government on the Commission's recommendations. Statement 1 is incorrect.</p> <p>The Finance Commission is appointed by the President under Article 280 of the Constitution. The chairman and members of the commission are selected as per the provisions contained in the Finance Commission [Miscellaneous Provisions] Act, 1951 and the Finance Commission (Salaries & Allowances) Rules, 1951. Statement 2 is correct.</p> <p>The Terms of Reference includes:</p> <p>Disaster management financing. Statement 3 is correct.</p> <p>Determining revenue to states Increasing the consolidated fund of states Increasing the income of Gram Panchayats Augmenting the Consolidated Fund of a State Supplementing the resources of the Panchayats and Municipalities</p>	<p>initiative to include participation from other Friendly Foreign Countries (FFCs).</p> <p>The mid-planning conference of Milan-24 was held in October this year. The last edition of Milan, which is held off Visakhapatnam, saw participation from over 40 countries.</p>								
4.	<p>D</p> <p>The next edition of Exercise MILAN is scheduled to be held in February 2024. It is a biennial multilateral naval exercise which began in 1995. Option (d) is correct. It has since significantly expanded in scope and scale to become the largest exercise held by India.</p> <p>It was started with the participation of only four countries, viz Indonesia, Singapore, Sri Lanka and Thailand, in the 1995 edition, the exercise has since transitioned leaps and bounds in terms of number of participants and complexity of exercises.</p> <p>Originally conceived in consonance with India's 'Look East Policy, MILAN expanded in ensuing years with the Government of India's 'Act East Policy' and Security and Growth for All in the Region (SAGAR)</p>	<p>5.</p> <p>B</p> <p>The loss and damage fund is a global financial package to ensure the rescue and rehabilitation of countries facing the cascading effects of climate change. Statement 1 is correct. The term refers to the compensation that rich nations, whose industrial growth has resulted in global warming and driven the planet into a climate crisis, must pay to poor nations, whose carbon footprint is low but are facing the brunt of rising sea levels, floods, crippling droughts, and intense cyclones, among others.</p> <p>It was first announced during COP27 in Sharm el-Sheikh, Egypt. Statement 2 is incorrect.</p> <p>The World Bank will oversee the loss and damage fund in the beginning, with the source of funds being rich nations, such as the US, the UK and the EU, as well as some developing countries. Statement 3 is correct.</p> <table><tr><td>What is it</td><td>It is a fund created to provide financial assistance to nations most vulnerable and impacted by the effects of climate change.</td></tr><tr><td>Hosted by</td><td>The World Bank will be the interim host of the fund for a period of four years.</td></tr><tr><td>Funding</td><td>All countries can contribute to the fund voluntarily. Countries have already committed at least \$450 million for the fund.</td></tr><tr><td>Eligibility to get funding</td><td>1) All developing countries are eligible to apply for the fund.</td></tr></table>	What is it	It is a fund created to provide financial assistance to nations most vulnerable and impacted by the effects of climate change.	Hosted by	The World Bank will be the interim host of the fund for a period of four years.	Funding	All countries can contribute to the fund voluntarily. Countries have already committed at least \$450 million for the fund.	Eligibility to get funding	1) All developing countries are eligible to apply for the fund.
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	<p>2) A certain percentage of the fund has been set apart for Least Developed Countries and Small island developing states.</p> <p>Criticism There is no clear plan on how the money will be added to the fund regularly. This raises serious questions over the funds long term sustainability.</p>	<p>Project Kuiper has three main parts:</p> <p>Ground infrastructure:</p> <p>It includes gateway antennas that securely send and receive customer data to and from satellites, along with telemetry, tracking, and control (TT&C) antennas that keep the satellites properly operating.</p> <p>Global networking connects those gateway antennas to the internet, public cloud, or private networks. Satellites: They operate in low Earth orbit (LEO) and relay data traffic to and from gateway antennas and customers.</p> <p>Customer terminals: These are the technology that Project Kuiper customers use to receive broadband service. The terminals combine antennas and processors into a single, compact system to deliver connectivity.</p>
6.	<p>A</p> <p>Recently, the Philippines has built a new coast guard station on the contested island of Thitu in the South China Sea, boosting its ability to monitor movements of Chinese vessels and aircraft in the busy disputed waterway.</p> <p>Pair 1 is incorrectly matched: Thitu island also known as Pag-asa Islands is located in South China Sea.</p> <p>Pair 2 is incorrectly matched: Hawaii is a group of volcanic islands in the Central Pacific Ocean.</p> <p>Pair 3 is incorrectly matched: Easter Island, a Chilean territory some 2,200 miles (3,540 km) from the mainland, is a protected national park and a UNESCO World Heritage site. An island and special territory of Chile in the southeastern Pacific Ocean.</p> <p>Pair 4 is correctly matched: Diego Garcia Island is a coral atoll located in the central Indian Ocean.</p>	<p>8.</p> <p>A</p> <p>Recently, the Codex Alimentarius Commission (CAC) has praised India's Standards on Millets and accepted its proposal for the development of global standards for millets during its 46th session held in Rome, Italy.</p> <p>It is an international food safety and quality standard-setting body. Statement 1 is correct. It was created by World Health Organisation and Food and Agriculture Organization of the United Nations in May 1963. Statement 2 is incorrect.</p> <p>Objective: Protecting consumer's health and ensuring fair practices in food trade.</p> <p>Members: It consists of 189-member countries.</p> <p>Membership of the Commission is open to all Member Nations and Associate Members of FAO and WHO which are interested in international food standards. India became the member of Codex Alimentarius in 1964. The Commission meets in regular session once a year alternating between Geneva and Rome.</p> <p>Funding: The programme of work of the Commission is funded through the regular budgets of WHO and FAO with all work subject to approval of the two governing bodies of the parent organizations.</p>
7.	<p>C</p> <p>Amazon recently signed an agreement with SpaceX to launch three of Elon Musk's Falcon 9 rockets to support deployment plans for its Project Kuiper.</p> <p>About Project Kuiper:</p> <p>It is Amazon's project to build a network of 3,236 satellites in low Earth orbit, to provide high-speed internet access anywhere in the world. Option (c) is correct.</p> <p>Its mission is to bring fast, affordable broadband to unserved and underserved communities around the world.</p>	

	<p>The Commission works in the six UN official languages. Currently it has standards for Sorghum and Pearl Millet.</p>	<p>Necessity (AoNs) for various capital acquisition proposals amounting to ₹2.23 lakh crore.</p>
9.	<p>C</p> <p>ALTERRA</p> <p>The United Arab Emirates recently announced the ALTERRA, a privately managed fund of USD 250 billion to catalyse private sector climate investments globally by 2030.</p> <p>ALTERRA is privately managed fund that aims to mobilise USD 250 billion globally by 2030 to catalyse private sector climate investments.</p> <p>It is the World's Largest Private Investment Vehicle for Climate Action. It aims to revolutionise international climate finance by fostering a fairer system, with a focus on enhancing funding accessibility for the Global South.</p> <ul style="list-style-type: none"> o It is geared towards climate investments and intended to transform emerging markets and developing economies. o It has been established by Lunate, an independent global investment manager, and is domiciled in the Abu Dhabi Global Market. <p>The 4 verticals of the ALTERRA includes:</p> <p>Energy Transition</p> <p>Industrial Decarbonisation</p> <p>Sustainable Living</p> <p>Climate Technologies</p> <p>Its scale and structure will create a multiplier effect in climate focused investment, making it a significant vehicle for climate investment. It provides a transformational solution for attracting private capital. From the initial tranche, an unspecified amount has been earmarked for the development of over 6.0 Gigawatt (GW) of new clean energy capacity in India. 6.0 Gigawatt (GW) of new clean energy capacity in India will include establishing 1,200 MW of wind and solar projects that will begin producing clean power by 2025.</p>	<p>About Defence Acquisition Council (DAC):</p> <p>DAC is the highest decision-making body of the Defence Ministry on procurement. Statement 1 is correct.</p> <p>Objective: To ensure expedited procurement of the approved requirements of the armed forces.</p> <p>Formation: It was formed after the Group of Minister's recommendations on 'Reforming the National Security System', in 2001, post-Kargil War (1999). Statement 3 is incorrect.</p> <p>Composition: The Defence Minister is the chairman of DAC. Statement 2 is correct.</p> <p>Its members include the Chief of Defence Staff (CDS) and chiefs of the Army, Navy, and Air Force.</p> <p>Functions:</p> <p>Give in-principle approval of a 15-year Long Term Integrated Perspective Plan (LTIPP) for defence forces.</p> <p>Accord of acceptance of necessity to acquisition proposals.</p> <p>Categorization of the acquisition proposals relating to 'Buy', 'Buy & Make', and 'Make'.</p> <p>Look into issues relating to single vendor clearance.</p> <p>Take decisions regarding 'offset' provisions in respect of acquisition proposals above Rs 300 crore.</p> <p>Take decisions regarding the transfer of technology under the 'Buy & Make' category of acquisition proposals.</p> <p>Field trial evaluation.</p>
10.	<p>B</p> <p>The Defence Acquisition Council recently accorded approval for Acceptance of</p>	<p>11. D</p> <p>Piezoelectricity is what generates the spark inside a stove lighter which is quite wondering for the one who is observing it. The term "piezoelectric" originates from the Greek words "piezein," meaning 'to squeeze', and "elektron", for amber - a material known for its association with static electricity.</p>

	<p>Piezoelectricity is a remarkable phenomenon whereby some materials - including quartz, ceramics such as lead zirconate titanate (PZT), and even certain biological substances like bone and the tendons - can generate an electric charge in response to mechanical stress. Statement I is incorrect.</p> <p>This property is the result of their unusual crystal structures. Usually, the charges on atoms in the molecules that make them up are symmetric on two sides of an axis.</p> <p>When some stress is applied, the molecule becomes distorted and the asymmetry of charges gives rise to a small electric current.</p> <p>Some materials also display an inverse piezoelectric effect, where the application of an electric current induces a mechanical deformation.</p> <p>Applications:</p> <p>Both direct and inverse piezoelectric materials are widely used in pressure sensors, accelerometers, and acoustic devices - where their ability to convert mechanical signals into electrical signals is crucial. Statement II is correct.</p> <p>It is also used in quartz watches.</p> <p>Piezoelectric transducers are common in ultrasonic applications, such as intrusion detectors and alarms. Piezoelectric devices are employed at AF (audio frequencies) as pickups, microphones, earphones, beepers, and buzzers. In wireless applications, piezoelectricity makes it possible to use crystals and ceramics as oscillators that generate predictable and stable signals at RF (radio frequencies).</p>	<p>What is Methotrexate (MTX)?</p> <p>Methotrexate belongs to a class of drugs known as antimetabolite. It is used to treat various medical conditions, primarily cancers, autoimmune diseases, and certain inflammatory conditions. Option (a) is correct.</p> <p>The MTX overdose in blood plasma is hazardous if it remains in the system for more than 10 hours, resulting in poisoning effects on the lungs, ulcers of the stomach, and heart stroke.</p> <p>What is this New highly fluorescent material for detection of MTX?</p> <p>This highly fluorescent material has been developed using phosphorene, cystine, and gold (Ph-Cys-Au). It has exceptional optical properties and thus can be used as a visual sensing platform for detecting the anti-cancer drug MTX over dosage.</p> <p>What is the Significance of this discovery?</p> <p>The materials are biocompatible with a good detection limit. Tradition procedures for detecting over dosage of MTX are relatively more time consuming and involves complex instrumentation.</p> <p>The nanocomposite exhibited in vitro cytotoxicity (quality of a substance to be toxic to cells in an artificial, controlled environment outside of a living organism) towards cancerous cells, but it was non-cytotoxic for noncancerous cells.</p>
<p>12.</p>	<p>A</p> <p>Why in the News?</p> <p>Scientists of Institute of Advanced Study in Science and Technology (IASST), an autonomous institute of Department of Science and Technology (DST) have developed a highly fluorescent material that can be used as a visual sensing platform for detecting the anti-cancer drug Methotrexate (MTX).</p>	<p>13.</p> <p>D</p> <p>Context:</p> <p>The latest version of the Global Stocktake (GST) includes a clause committing all signatories to "an orderly and just phase out of fossil fuels". Statement 2 is correct.</p> <p>Details:</p> <p>For the first time, a key document being negotiated at the UN's annual climate summit has underlined the need for the world to do away with all fossil fuels, in its draft text.</p> <p>Global Stocktake (GST):</p> <p>GST will be a Party-driven process conducted transparently and with the</p>

	<p>participation of non-party stakeholders. Statement 1 is correct.</p> <p>It will be done every five years, starting from 2023. Statement 3 is correct.</p> <p>It enables countries and other stakeholders to see where they're collectively making progress toward meeting the goals of the Paris Agreement - and where they're not.</p> <p>It's like taking inventory. It means looking at everything related to where the world stands on climate action and support, identifying the gaps, and working together to agree on solutions pathways (to 2030 and beyond).</p> <p>GST also points to a growing gap between the needs of developing countries and the support provided and mobilized for them, and calls for the unlocking and redeployment of trillions of dollars towards climate action and climate-resilient development.</p> <p>What is the Global Stocktake Report?</p> <p>The UN published a technical report on the first Global Stocktake in September 2023, according to which the global community took some action and made some progress but it was still too little.</p>	<p>The cubes are capable of handling patients with severe injuries up to 25 major burns, long limb fractures, chest injuries, spinal injuries and approximately 10 head injuries. It can treat as many as 200 patients.</p> <p>These cubes are light and portable, and can be rapidly deployed anywhere, from airdrops to ground transportation.</p> <p>Design: It consists of 72 cubes that can be combined to form a specialized cage capable of accommodating 36 mini-cubes. The mini-cubes are packed with everything essential for the survival of 100 individuals for duration of 48 hours.</p> <p>There are two master cubes designed to be interconnected, allowing them to accommodate a maximum of 200 survivors. The total weight of every master cube with 36 cubes is less than 750 kilos.</p> <p>It relies on the Rubik's Cube concept and each of the cubes is designed to weigh less than 20 kilos to make it easy to carry up manually. The structure will also contain a tablet-based application which can operate all 72 cubes.</p>
14.	<p>C</p> <p>The world's first portable hospital, 'Aarogya Maitri Aid Cube', was unveiled recently in Gurugram.</p> <p>About Aarogya Maitri Aid Cube:</p> <p>It is the world's first portable hospital. Statement 1 is correct. Designed indigenously under Project BHISHM (Bharat Health Initiative for Sahyog Hita and Maitri), the modular trauma management and aid system is made up of 72 detachable mini-cubes, each being a specialized station for emergency response and humanitarian efforts. Statement 2 is correct.</p> <p>It contains medical equipment and supplies such as a mini-ICU, an operation theatre, cooking station, food, water, a power generator, blood test equipment, power generator, an X-ray machine, and more.</p>	<p>15. C</p> <p>The BASIC countries - a grouping of Brazil, South Africa, India and China. Statement 1 is correct.</p> <p>The BASIC group was formed as the result of an agreement signed by the four countries on November 28, 2009.</p> <p>The signatory nations, all recently industrialised, committed to act jointly at the Copenhagen climate summit in 2009, including a possible united walk-out if their common minimum position was not met by the developed nations.</p> <p>The Copenhagen Summit was the 15th meeting of parties of the UNFCCC, hence, also called the COP15 Summit. Statement 2 is correct.</p> <p>It was held in Copenhagen, Denmark in 2009. The BASIC countries constituted one of the parties in the Copenhagen Accord reached with the US-led grouping; the Accord, was, however, not legally</p>

	<p>binding. These nations have a broadly common position on reducing greenhouse gas emissions and raising the massive funds that are needed to fight climate change. The BASIC group wields considerable heft purely because of the size of the economies and populations of the member countries.</p> <p>China, India, and Brazil are the world's second, fifth, and ninth-largest economies. Brazil, South Africa, India and China put together has one-third of the world's geographical area and nearly 40% of the world's population.</p> <p>BASIC is one of several groups of nations working together to fight climate change and carry out negotiations within the UNFCCC.</p> <p>These major developing economies are significant polluters but bear diminished responsibility for the carbon dioxide that has been pumped into the atmosphere since 1850 and also have low per capita emissions because of their significant populations.</p> <p>These countries have therefore for many years sought to rebuff pressure from developed countries to take on firmer emission reductions.</p>	<p>substantially higher bandwidth and lower latency compared to 4G LTE. Enhanced call quality: It utilizes more advanced audio codecs that provide superior clarity and fidelity based on 5G's increased data capacity. Faster connection times: It promises faster call connection times, ensuring a seamless and prompt user experience.</p> <p>Improved reliability: Vo5G aims to eliminate the notorious call drop issues, particularly during transitions between 5G and 4G. Lower packet loss contributes to better reliability, minimising the occurrence of voice cut-outs during calls. Statement 2 is correct.</p>
16.	<p>C</p> <p>Reports indicate Reliance Jio, India's largest mobile carrier, has been testing Voice over New Radio (VoNR) behind the scenes. It is also known as Voice over New Radio (VoNR).</p> <p>This standard allows voice calls over 5G networks instead of the current standard that uses 4G. Statement 1 is correct.</p> <p>In simple terms, Vo5G takes all the improvements of 5G - speed, capacity, responsiveness - and applies them squarely to voice. It aims to have all that infrastructure and interoperability ready well in advance. To use Vo5G, you need three things: a phone that supports Vo5G, a carrier that offers Vo5G, and a 5G signal in your area.</p> <p>How is VoNR better than VoLTE?</p> <p>VoNR brings clear advances over VoLTE (Voice over Long-Term Evolution). With 5G's</p>	<p>17. D</p> <p>Recently, researchers have developed miniature robots using human cells and termed them as anthrobots. These are constructed from human tracheal cells which are bio-robots that possess self-assembly capabilities. These are capable of both movement and healing neurons within a laboratory setting. They can spontaneously fuse together to form a larger structure called a superbot, which was able to encourage the growth of neurons.</p> <p>Size: They are measuring between the width of a human hair and the tip of a sharpened pencil.</p> <p>Structure: The anthrobots displayed diversity in structure and behavior. Some took on a spherical shape fully covered in cilia, while others resembled a football shape irregularly adorned with cilia. These anthrobots are different from Xenobots, which are created from embryonic stem cells of frog.</p> <p>Application: They hold promise for regenerative medicine, wound healing, and disease treatment.</p> <p>What are Tracheal cells?</p> <p>These are from the lining of the bronchi/trachea, the network of tubes used to convey air to the lungs. They are responsible for producing lubricating mucus to keep the airways functional and they are a type of epithelial cell, a term</p>

	used generally to refer to cells lining the inside or outside of the body. These cells generate mucus and a number of other compounds, which play an important role in respiration.		unwittingly downloading what appears to be a legitimate banking app, which contains Fjord Phantom.
18.	<p>B</p> <p>TESS (Transiting Exoplanet Survey Satellite): TESS is a Space Telescope launched by NASA in 2018. The mission aim is to detect small planets with bright host stars in the solar neighbourhood, so that detailed characterizations of the planets and their atmospheres can be performed.</p> <p>How does TESS find Planets?</p> <p>TESS detects exoplanets by looking for periodic dips in stars' brightness as planets cross in front of them along our sightline. The larger the planet, the further the drop in brightness during the transit. How long it takes a planet to pass in front of the star and come back tells us the shape of its orbit.</p> <p>CHEOPS (CHAracterising ExOPlanets Satellite): It is a European space telescope. Its objective is to determine the size of known extrasolar planets, which will allow the estimation of their mass, density, composition and their formation. Launched on 18 December 2019, it is the first Small-class mission in ESA's Cosmic Vision science programme.</p>		<p>When this app gets installed, the attackers, posing as customer service representatives, guide the users through the steps to run the app. The malware uses virtualization to create a virtual container to run this app, and attackers can monitor the user's actions and steal their credentials.</p> <p>It facilitates attackers in gaining access to files and memory, conducting debugging, and injecting code into other apps. additionally, the malware logs various actions performed by the targeted applications, signifying active development and suggesting potential targeting of other apps in the future.</p>
19.	<p>C</p> <p>Cybersecurity firm Promon has identified a novel Android malware named FjordPhantom that employs virtualization to target applications.</p> <p>About Fjord Phantom:It is a new malware that employs virtualization to elude detection and target applications. Option (c) is correct. It propagates through messaging services and combines app-based malware with social engineering to deceive banking customers. It strategically zeroes in on users within Southeast Asia, encompassing countries such as Malaysia, Thailand, Indonesia, Singapore, and Vietnam.</p> <p>Working: It utilizes email, SMS, and messaging apps to entice users into</p>	20.	<p>C</p> <p>The National Investigation Agency Act, 2008 provided for constitution of an investigation agency at the national level to investigate and prosecute offences affecting the sovereignty, security and integrity of India, security of State, friendly relations with foreign States and offences under Acts enacted to implement international treaties, agreements, conventions and resolutions of the United Nations, its agencies and other international organisations and for matters connected therewith or incidental thereto.</p> <p>The Schedule of the Act specifies a list of offences which lie within the jurisdiction of the National Investigation Agency. The offences mentioned in the Schedule include:</p> <p>Human trafficking- Sections 370 and 370A of Chapter XVI of the Indian Penal Code.</p> <p>Counterfeiting of currency notes- Sections 489-A to 489-E of the Indian Penal Code</p> <p>Manufacture or sale of prohibited arms- Sub-section (1AA) of section 25 of Chapter V of the Arms Act, 1959.</p> <p>Cyber-terrorism- Section 66F of Chapter XI of the Information Technology Act, 2000</p> <p>Offences against the state- Sections 121 to 130 of the Indian Penal Code.</p>

	<p>Apart from the above, the Schedule also includes offences under Acts such as the Atomic Energy Act, 1962, and the Unlawful Activities Prevention Act, 1967 etc. The officers of the NIA have the same powers as other police officers while investigating such offences across India.</p>		<p>building understanding and capacities of MAVIM and stakeholders on including persons with disabilities in the Nav Tejaswini Yojana of the Government of Maharashtra. Creating an enabling environment for the social and economic inclusion of persons with disabilities.</p>
21.	<p>D</p> <p>"Sparkling Disability Inclusive Rural Transformation" - SPARK project is implemented in four countries - India, Malawi, Burkina Faso and Mozambique. While ILO is supporting the project implementation in India and Malawi, the Light for the World is responsible for project implementation in Mozambique and Burkina Faso.</p> <p>The SPARK project uses a systemic action learning approach to impact the lives of persons with disabilities. This approach will enable Persons with Disabilities to: become fully engaged in the economic activities of selected agricultural and pastoral value chains, increase their incomes, thus tackling poverty.</p> <p>Therefore, adding to the commitments under Sustainable Development Goals and the Convention on the Rights of Persons with Disabilities.</p> <p>Statement I is incorrect: The International Labour Organisation (ILO) and the International Fund for Agricultural Development (IFAD), in collaboration with Mahila Arthik Vikas Mahamandal (MAVIM), a corporation of the Women and Child Development Department, Government of Maharashtra, are implementing the SPARK project.</p> <p>Statement II is correct: Objectives of the Sparking Disability Inclusive Rural Transformation (SPARK) project include:</p> <p>Putting persons with disabilities in the lead by building a sustainable network of Disability Inclusion Facilitators (DIFs), who will support awareness raising of disability within implementing partners and stakeholders, and support persons with disabilities in accessing services.</p> <p>Promoting disability inclusion as an integral part of the project design and implementation. SPARK Project will support</p>	22.	<p>B</p> <p>In order to implement the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD), the Rights of Persons with Disabilities Act, 2016 went into effect in December 2016.</p> <p>Statement 2 is correct: In the RPWD Act 2016, there has been an increase in the type of disabled, which has been increased from 7 types to 21 types and the Central Government has the power to add more to the list.</p> <p>These 21 types of disabilities include:</p> <p>Blindness, Low-vision, Leprosy Cured persons, Hearing Impairment (deaf and hard of hearing), Locomotor Disability, Dwarfism, Intellectual Disability, Mental Illness, Autism Spectrum Disorder, Cerebral Palsy, Muscular Dystrophy Chronic, Neurological conditions, Specific Learning Disabilities, Multiple Sclerosis, Speech and Language disability, Thalassemia, Haemophilia, Sickle Cell disease, Multiple Disabilities including deaf blindness, Acid Attack victim, Parkinson's disease.</p> <p>Statement 1 is incorrect: The RPWD Act 2016 has increased the quantum of reservation for people suffering from disabilities from 3% to 4% in government jobs and from 3% to 5% in higher education institutes. Every child with benchmark disability between the age group of 6 and 18 years shall have the right to free education.</p>
		23.	<p>A</p> <p>Pair 1 is incorrect: Whitsun Reef is located in the South China Sea, and it comes under</p>

the Philippines' Exclusive Economic Zones (EEZ). However, China also claims the reef under the nine-dash line.

China stakes claim to 90% of the South China Sea, and this claim is based on the U-shaped nine-dash line etched on the map in the 1940s by a Chinese geographer.



Pair 2 is correct: The 2,891m high Mount Merapi is located on Indonesia's western most Sumatra island.

The Indonesian archipelago sits on the so-called Pacific Ring of Fire, where the meeting of continental plates causes high volcanic and seismic activity.



Pair 3 is incorrect: Donetsk is a city located in southeastern Ukraine, on the headwaters of the Kalmius River. It is the capital of Donetsk oblast (province) and the most prominent city in the Donets Basin (Donbas) industrial region.

With the collapse of the Soviet Union in 1991, Donetsk became a major industrial engine of the economy of independent Ukraine.



After the Russian invasion of Ukraine, Russian Pres. Vladimir Putin announced the annexation of Donetsk in Ukraine.

Pair 4 is incorrect: Guayana Esequiba also called Esequibo or Essequibo, is a disputed territory west of the Essequibo River. The territory is claimed by both Guyana and Venezuela, but Guyana has controlled the area based on the 1899 Paris Arbitral Award. The boundary dispute was inherited from the colonial powers (Spain in the case of Venezuela, and the Netherlands and the United Kingdom in the case of Guyana) and has persisted following the independence of Venezuela and Guyana.



A satellite map showing the Essequibo Region, striped, at the centre of the current border dispute between Guyana and Venezuela. IMAGE FROM COMMONS.WIKIMEDIA.ORG

24.

D

Statement I is incorrect- In India, the National Lighting Code (NLC) published by the Bureau of Indian Standard (BIS) regulates the light pollution. No separate legislative measure on the lines of the Air (Prevention and Control of Pollution) Act,

<p>1981 has been taken, as of now. The umbrella legislation for regulation of the environmental stresses such as pollution, degradation of environmental quality etc. is the Environment (Protection) Act, 1986.</p> <p>The National Lighting Code (NLC) has been formulated for the purpose of setting out in a convenient form the requirements for responsible social, commercial and engineering conduct for the designers, manufacturers and suppliers of lighting.</p> <p>The intent of this code is to encourage good lighting practices and systems which would minimize light pollution, glare, light trespass and conserve energy while maintaining safety, security, utility and productivity.</p> <p>This National Lighting Code is applicable to the lighting systems in large varieties of interior and exterior installations including special areas like hospitals, utilities, sports complex, metro railway etc. under the control of qualified persons.</p> <p>The code, however, does not specify the additional requirements to be considered while designing lightening system for certain areas such as marine, railway rolling stock, theatre, television and photography etc.</p> <p>The code also does not cover the requirements and methods of test applicable to light sources and luminaries for which separate Indian Standards exists.</p> <p>Statement II is correct- Marine organisms that evolved over millions of years to adapt to natural light now face an ever-increasing flood of light from anthropogenic sources along the coasts. Artificial light can easily wash out the glow of moonlight and starlight, which are important cues for marine organisms. This disrupts their hormonal cycles, inter-species behaviour and reproduction, noted the findings of the study published in the journal Aquatic Conservation: Marine and Freshwater Ecosystems.</p> <p>Compared to prior technologies, LEDs often emit more short-wavelength light and can pierce deep into the water.</p>	<p>Impacts of Light Pollution in a Nutshell:</p> <p>Light pollution interrupts wildlife patterns and harms biodiversity: Migratory birds rely on natural light to guide them, and interruptions can lead to collisions and incorrect navigations on their long-distance journeys.</p> <p>Risks to human health: Artificial light can wreak havoc on natural body rhythms in both humans and animals. Nocturnal light interrupts sleep and confuses the circadian rhythm-the internal, twenty-four-hour clock that guides day and night activities and affects physiological processes in nearly all living organisms. One of these processes is the production of the hormone melatonin, which is released when it is dark and is inhibited when there is light present. An increased amount of light at night lowers melatonin production, which results in sleep deprivation, fatigue, headaches, stress, anxiety, and other health problems.</p> <p>Impact on astronomy: Artificial light in the sky causes 'sky glow' which tends to reduce visibility of stars and interferes with the astronomical studies.</p> <p>25. D</p> <p>Waste / Bio-mass sources like agricultural residue, cattle dung, sugarcane press mud, municipal solid waste and sewage treatment plant waste, etc. produce bio-gas through the process of anaerobic decomposition. The biogas is purified to remove hydrogen sulphide (H₂S), carbon dioxide (CO₂), water vapour and compressed as Compressed Bio Gas (CBG), which has methane (CH₄) content of more than 90%. Statement 1 is correct.</p> <p>CBG has calorific value and other properties similar to CNG and hence can be utilized as green renewable automotive fuel. Thus, it can replace CNG in automotive, industrial and commercial areas, given the abundance biomass availability within the country.</p> <p>Biogas is a product from the process of degradation of organic matter by anaerobic bacteria. The biogas generation process</p>
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consists of four subsequent chemical and biochemical reactions i.e. Hydrolysis reaction, Acidogenesis reaction, Acetogenesis reaction and Methanogenesis reaction. Statement 2 is correct. Hydrolysis reaction decomposes organic molecule such as carbohydrates, proteins and fats into glucose, amino acids and fatty acids, respectively.

Acidogenesis converts those generated small organic molecules to volatile organic acids with help from bacteria. During the Acetogenesis process, bacteria in the acetic group digests volatile organic acids and releases acetic acid.

Lastly, anaerobic bacteria in the methanogenic producing bacteria group will complete the Methanogenesis process by converting acetic acid to methane gas and other gases like carbon dioxide and hydrogen sulphide.

The biogas produced contains approximately 55% to 60% methane, 40% to 45% carbon dioxide and trace amounts of hydrogen sulphide. Biogas is purified to remove carbon dioxide and hydrogen sulphide gases to prepare CBG. The CBG can be transported through cylinder cascades or pipelines to retail outlets.

Hydrogen sulphide is a corrosive gas. Presence of carbon-dioxide in the bio-gas reduces its calorific value. Hence the bio-gas needs to be purified. Various technologies are used for removal of hydrogen sulphide, as detailed below:

Table 2 : Comparative analysis of technologies to remove Hydrogen Sulphide

Method	Efficiency	Cap Cost	O&M	Complexity
Biological Fixation	Moderate	Moderate	Low	Moderate
Iron chloride dosing	Moderate	Low	Moderate	Low
Water scrubbing	High	High	Moderate	High
Activated Carbon	High	High	Moderate	Moderate
Iron Hydroxide or Oxide	High	Moderate	Moderate	Moderate
Sodium Hydroxide	High	Moderate	High	Moderate

For removal of carbon dioxide, the following technologies are used:

Pressure Swing Adsorption (PSA): This technology is most prevalent for large bio-gas systems in India. With this technique,

carbon dioxide is separated from the biogas by adsorption on a surface under elevated pressure. The adsorbing material, usually activated carbon or zeolites, is regenerated by a sequential decrease in pressure before the column is reloaded again, hence the name of the technique. Hydrogen sulphide and water needs to be removed before the PSA-column. There is significant loss of methane (20-30%) in this process.

Water scrubbing: Carbon dioxide has a higher solubility in water than methane. Carbon dioxide will therefore be dissolved to a higher extent than methane, particularly at lower temperatures. In the scrubber column carbon dioxide is dissolved in the water, while the methane concentration in the gas phase increases. The gas leaving the scrubber has therefore an increased concentration of methane.

Membrane Separation: Dry membranes for biogas upgrading are made of materials that are permeable to carbon dioxide, water and ammonia. Hydrogen sulphide, and oxygen permeate through the membrane to some extent while nitrogen and methane only pass to a very low extent. Usually membranes are in the form of hollow fibres bundled together. Statement 3 is correct.

Chemical scrubbing - Monoethylamine (MEA) system: This is one of the best systems for bio-gas purification achieving 99.9% purity with negligible loss of methane. The systems are being extensively used in Germany for purification of bio-gas. Carbon dioxide is not only absorbed in the liquid, but also reacts chemically with the amine in the liquid. Since the chemical reaction is strongly selective, the methane loss might be as low as <0.1%.


26.

C

Statement 1 is correct: The Climate Vulnerable Forum (CVF) is an international partnership of countries highly vulnerable to a warming planet. The Forum serves as a South-South cooperation platform for participating governments to act together to deal with global climate change. Its

	<p>purpose is to define and articulate the commonly held priorities of climate-vulnerable countries.</p> <p>Statement 2 is correct: The CVF is the international forum for countries most threatened by climate change. Composed of 58 members from Africa, Asia, the Caribbean, Latin America and the Pacific, it represents some 1.4 billion people worldwide. It was founded in November 2009 by the Maldives at Male, together with 10 other countries. The Forum is led by a rotating chair for an ordinary period of two years, with Ghana currently chairing for the period 2022-2024. Ghana is the second African nation to lead the CVF after Ethiopia.</p> <p>At the CVF High-level meeting held during the UNFCCC Climate Change Conference in Paris (COP 21) following were adopted:</p> <p>The Manila-Paris Declaration- It articulates the common concerns and commitments of vulnerable countries and urges the strengthening of the UNFCCC goal of limiting warming to below 1.5 degrees Celsius above pre industrial levels.</p>	<p>with better recovery prospects and the ability to lend long-term.</p> <p>The Demand for corporate bonds will also be driven by non-bank lenders looking to serve credit demand from the retail segment.</p>
27.	<p>B</p> <p>CRISIL is Credit Rating Information Services of India Limited. It is regarded as the global analytics business which services the financial markets and helps them function most transparently and efficiently.</p> <p>According to the recent report of CRISIL: The corporate bond market growth is expected to gather pace in the coming years, and its overall size is likely to more than double to over ₹100 lakh crore by March 2030. The push to capital expenditure, the attractiveness of the infrastructure sector and the financialisation of savings would be key drivers of growth of the Corporate Bond Market. Statement 1,3 and 4 are correct.</p> <p>The growth in capex will be driven by high capacity utilisation, healthy corporate sector balance sheets and a strong economic outlook. The credit risk profile for infrastructure assets is getting stronger</p>	<p>28. C</p> <p>The Methane Alert and Response System (MARS) notified governments of 127 plumes spanning four continents and identified 1,500 plumes in its pilot stage, according to a new report by the UN Environment Programme (UNEP) released at the 28th Conference of Parties (COP28) of the United Nations Framework Convention on Climate Change.</p> <p>Methane is the second-biggest cause of global warming caused by anthropogenic activity after carbon dioxide and is 80 times more powerful. Energy, agriculture and waste sectors are the primary emitters of methane, responsible for 30 per cent of the earth's warning.</p> <p>Statement I is correct: The Methane Alert and Response System (MARS) is the first-ever global system that uses satellite data to monitor major emission events and notify governments and companies who can address them.</p> <p>Statement II is incorrect: MARS was launched by the United Nations Environment Programme's (UNEP) International Methane Emissions Observatory (IMEO) at COP27 of the United Nations Framework Convention on Climate Change (UNFCCC) held in 2022.</p> <p>The IMEO launched at the G20 Leaders Summit in 2021, gathers methane emissions-related data from satellites through MARS and from industries through the Oil and Gas Methane Partnership 2.0. It also relies on scientific measurement studies.</p> <p>The Oil & Gas Methane Partnership 2.0 (OGMP 2.0) is UNEP's flagship programme that includes a partnership of companies to improve the accuracy and transparency of methane emissions data from the oil and gas sector through a committed framework.</p>

<p>29.</p>	<p>C</p> <p>Garden Reach Shipbuilders and Engineers (GRSE) delivered INS Sandhayak to the Indian Navy on the occasion of Navy Day.</p> <p>About INS Sandhayak:</p> <p>It is the largest survey vessel ever built in India. Statement 1 is correct.</p> <p>It is fully designed and built by the Garden Reach Shipbuilders and Engineers (GRSE), Kolkata. It is the first in the series of four Survey Vessels (Large), or SVLs, being built by GRSE. It is the reincarnation of another ship by that name. The previous warship, also a survey vessel, was commissioned into the Navy in 1981 and decommissioned in 2021.</p> <p>The new INS Sandhayak and the remaining ships in the series are far more advanced than their predecessors.</p> <p>Features:</p> <p>It is a 110-metre-long ship propelled by two marine diesel engines combined with fixed-pitch propellers. It is fitted with bow and stern thrusters to help the ships manoeuvre at low speeds during surveys.</p> <p>It is capable of full-scale coastal and deep-water hydrographic surveys of port and harbour approaches and the determination of navigation channels and routes.</p> <p>It can also undertake surveys of maritime limits and the collection of oceanographic and geographical data for defence applications. Statement 2 is correct.</p> <p>It can carry a helicopter, participate in low-intensity combat, and function as a hospital ship.</p> <p>It can also be used for humanitarian assistance and disaster relief operations.</p>	<p>and organizations of the world. Aim: To promote dynamic social security as the social dimension in a globalizing world by supporting excellence in social security administration.</p> <p>It was founded in 1927 under the auspices of the International Labour Organization.</p> <p>It has over 320-member institutions from over 160 countries. Headquarters: Geneva (at the International Labour Office)</p> <p>It provides access to information, expert advice, business standards, practical guidelines and platforms for members to build and promote dynamic social security systems worldwide.</p> <p>The vision of dynamic social security provides a framework for the ISSA's actions.</p> <p>The Liaison Office of ISSA for South Asia is also functioning from the ESI Corporation at its headquarters.</p>
<p>30.</p>	<p>C</p> <p>Recently, the Employees' State Insurance Corporation (ESIC) bagged the "International Social Security Association's ISSA Vision Zero 2023" Award in the recently held 23rd World Congress on Safety and Health at Work in Sydney, Australia.</p> <p>It is the principal international institution bringing together social security agencies</p>	<p>31. B</p> <p>The Army recently deployed double humped camels for logistical support to the troops in eastern Ladakh.</p> <p>About Double Humped Camels: Double Humped Camels or Bactrian camels, have two humps on their backs where they store fat.</p> <p>Scientific Name: <i>Camelus bactrianus</i></p> <p>Distribution: They are native to the harsh and arid regions of Central Asia. Statement 1 is correct.</p> <p>They occupy habitats in Central Asia from Afghanistan to China, primarily up into the Mongolian steppes and the Gobi Desert.</p> <p>A small population of Bactrian camels exists in the Nubra Valley of Ladakh.</p> <p>Features: They are up to 10 feet (3.0 m) long and weigh 590-1000 kg. They are smaller and slenderer than the one-humped dromedary camels found in Africa and the Middle East.</p> <p>Their fur colour varies from beige to dark brown. They have thick, woolly coats that provide warmth during the cold months and insulation from the desert heat, and they shed this for the summer months.</p> <p>Lifespan: 50 years</p> <p>They typically live in herds of 6-20 members, although they can occasionally</p>

	<p>be solitary or in groups of up to 30 individuals.</p> <p>Diet: They are omnivores but are primarily herbivores that constantly graze on grasses.</p> <p>Conservation Status: IUCN Red List: Critically Endangered. Statement 2 is incorrect.</p>		<p>What is Dynamic Ground Water Resource Assessment Report?</p> <p>Aim- To determine the prevailing status of groundwater resources and the impact of ongoing groundwater management practices. Conducted jointly by Central Ground Water Board (CGWB) and States/UTs. Option (c) is correct.</p> <p>Previously carried out in 1980, 1995, 2004, 2009, 2011, 2013, 2017, 2020 and 2022</p> <p>What are the Highlights of Dynamic Ground Water Resource Assessment Report 2023?</p> <p>Increase in ground water recharge: Total annual ground water recharge is 449.08 billion cubic meters (BCM), marking an increase of 11.48 BCM compared to 2022.</p> <p>Increase in annual ground water extraction: Total annual ground water extraction for the entire country is 241.34 BCM.</p> <p>Decrease in stage of groundwater extraction level: Currently stands at 59.23%.</p> <p>Note- Stage of groundwater extraction is a measure of annual ground water extraction for all uses (irrigation, industrial and domestic uses) over annual extractable ground water resource. Out of total 6553 assessment units- 736 units (11.23%) have been categorized as 'Over-exploited' (where the annual ground water extraction is more than annual extractable ground water resource), witnessing a decline-4793 units categorized as 'Safe'</p>
32.	<p>A</p> <p>Statement 1 is correct. The Isthmus of Kra is a narrow stretch of land that connects the Malay Peninsula to the Thai mainland.</p> <p>Statements 2 is incorrect. The Kra Isthmus Project is a proposed canal that would connect the Andaman Sea and Gulf of Thailand, providing a shorter shipping route between Europe and Asia.</p> <p>This would reduce reliance on the Malacca Strait, which is a narrow and congested waterway that is currently the main shipping route between the two regions.</p>		
33.	<p>C</p> <p>As per the report, total annual ground water extraction for the entire country has increased. Total annual ground water recharge is 449.08 billion cubic meters (BCM), marking an increase of 11.48 BCM</p>  <p>compared to 2022. The report has acknowledged the positive impact of initiatives like Atal Bhujal Yojana and Jal Shakti Abhiyan in improving groundwater resource management.</p> <p>The report provides that there has been a decrease in stage of groundwater extraction level. Stage of groundwater extraction is a measure of annual ground water extraction for all uses (irrigation, industrial and domestic uses) over annual extractable ground water resource.</p>		<p>34. B</p> <p>A project called Worldcoin has been launched by OpenAI, an Artificial Intelligence company. The project claims to be building the world's largest identity and financial public network.</p> <p>Statement 1 is correct: The project aims to introduce Worldcoin token as a new cryptocurrency that offers a new and unique method for identification to reduce the risk of fraud. Worldcoin token (WLD) can be used as a medium of purchases and transfers globally using digital assets and traditional currencies.</p>

	<p>Statement 2 is incorrect: Iris scan (eye) is essential to sign up to the network. It will be done through a ball-like object called an 'orb'. Once the orb's iris scan verifies the person is a real human, it creates a World ID for them. The biometric data would help differentiate between humans and Artificial Intelligence systems and prevent duplication of IDs from the same person. It can then be used as an ID in a variety of everyday applications - such as a cryptocurrency wallet - without revealing the user's identity.</p> <p>Statement 3 is correct: The Worldcoin protocol is intended to be the world's largest identity and financial public network, open to everyone regardless of their country, background, or economic status.</p>	<p>With P2P lending, borrowers take loans from individual investors who are willing to lend their own money for an agreed interest rate. The profile of a borrower is usually displayed on a P2P online platform where investors can reassess these profiles to determine whether they want to risk lending money to a borrower.</p> <p>The repayments are also made through the NBFC-P2P, which processes and forwards the payments to the lenders who invested in the loan. P2P lending is also called social lending or crowd lending.</p>
35. C	<p>According to a report by Future Market Insight: Peer-to-peer lending, which sidesteps banks and financial institutions by connecting individual lenders with borrowers, has grown to \$407 billion globally as of last year.</p> <p>The Reserve Bank of India has told peer-to-peer lending platforms to halt certain activities after inspections found rule violations and misleading sales practices.</p> <p>Statement 1 is correct: P2P intermediaries are a new class of Non-banking financial companies (NBFCs).</p> <p>A non-banking financial company (NBFC) is a company registered under the Companies Act, 1956 and is engaged in the business of loans and advances, acquisition of shares/stock/bonds/ debentures/ securities issued by government or local authority or other securities like marketable nature, leasing, hire-purchase, insurance business, chit business, but does not include any institution whose principal business is that of agriculture activity, industrial activity, sale/purchase/ construction of immovable property.</p> <p>Statement 2 is correct: The P2P intermediaries provide the platform which pairs borrowers and individual lenders. It allows people to lend or borrow money from one another without going through a bank.</p>	<p>36. A</p> <p>The IMO (International Maritime Organization) is a specialized agency of the United Nations that regulates international shipping.</p> <p>Its primary function is to develop and implement international maritime conventions, standards, and regulations that promote safety, environmental protection, and efficiency in shipping. Statement 2 is incorrect.</p> <p>It also provides technical assistance and support to member states to help them implement these regulations.</p> <p>What is the International Maritime Organisation (IMO)?</p> <p>It is a specialized agency of the United Nations that regulates the maritime industry, which supports global trade, transportation, and all marine operations. Statement 1 is correct.</p> <p>Established in: 1948 but entered into force in 1958.</p> <p>Headquarters: London, UK. Statement 3 is incorrect.</p> <p>Purpose: It is responsible for measures to improve the safety and security of international shipping and to prevent pollution from ships. It is also involved in legal matters, including liability and compensation issues and the facilitation of international maritime traffic.</p> <p>Members: 175</p> <p>India: India joined the IMO in 1959.</p> <p>IMO currently lists India as among the 10 states with the 'largest interest in international seaborne trade'.</p>

	<p>Structure of the organization: IMO is led by the Secretary General. IMO Assembly: It consists of all Member States and is the highest governing body of the Organization. IMO Council: It is elected by the Assembly for a term of two years. It acts as the executive organ of IMO and is responsible for supervising the work of the Organization.</p>	<p>States of America) provides guidance to the DoD on GPS-related matters impacting federal agencies to ensure the system addresses national priorities as well as military requirements. Functioning: The GPS system consists of three main segments: the space segment with 24 satellites in six orbits, the control segment managing satellite performance and commands, and the user segment incorporating GPS across various sectors like agriculture, construction, military operations, and more. The satellites emit radio signals at specific frequencies (L1 and L2) with encoded information about their location and time. GPS receivers on devices, like smartphones, pick up these signals to calculate the distance from satellites and, by triangulation, determine the user's precise location in three dimensions of space and one of time. India's has developed NavIC system, comprising seven satellites with rubidium atomic clocks, and the GPS-Aided Geo Augmented Navigation (GAGAN) system, developed for civil aviation applications. Navigation Systems Operational in the World: GPS from the U.S. GLONASS from Russia. Galileo from European Union BeiDou from China. NavIC from India QZSS from Japan.</p>
37.	<p>B The R21 vaccine is the second malaria vaccine recommended by the WHO, following the RTS,S/AS01 vaccine, which received a WHO recommendation in 2021. It is a new vaccine approved for the prevention of malaria in children. It was developed by the University of Oxford and the Serum Institute of India with support from the European and Developing Countries Clinical Trials Partnership ('EDCTP'), the Wellcome Trust, and the European Investment Bank ('EIB').</p>	
38.	<p>C Statement I is correct: The Global Positioning System (GPS) is a space-based radionavigation system consisting of a constellation of satellites broadcasting navigation signals and a network of ground stations and satellite control stations used for monitoring and control. The Global Positioning System, formally known as the Navstar Global Positioning System, was initiated as a joint civil/military technical program in 1973. Statement II is incorrect: At present, there are thirty-one satellites that constitute the Global Positioning System, and they orbit the Earth at an altitude of approximately 11,000 miles providing users with accurate information on position, velocity, and time anywhere in the world and in all weather conditions. GPS is operated and maintained by the Department of Defence (DoD), United States of America. The National Space-Based Positioning, Navigation, and Timing (PNT) Executive Committee (EXCOM) (United</p>	<p>39. C The National e-Governance Division (NeGD) recently organised the 40th Chief Information Security Officers (CISOs) Deep-Dive training programme under the Cyber Surakshit Bharat Initiative. About Cyber Surakshit Bharat Initiative: It is an initiative of the Ministry of Electronics and Information Technology (MeitY), Government of India.</p>

	<p>It was conceptualised with the mission to spread awareness about cybercrime and build the capacities of Chief Information Security Officers (CISOs) and frontline IT officials across all government departments.</p> <p>It is an initiative to fortify the cyber security system in India with regard to the Government's vision of a Digital India. It was launched in cooperation with the National e-Governance Division (NeGD) and various industry partners in India.</p> <p>It can be entitled as the first public-private enterprise of its kind. The partners involved in the origination of this scheme include chief IT companies like Intel, Microsoft, etc.</p> <p>Operation: It will be operated on three principles: education, awareness, and enablement.</p> <p>It will comprise a program of awareness on the importance of cybersecurity. The scheme will also include a number of workshops on the best enablement and practices of the officials with cybersecurity health tool kits for the management and mitigation of cyber threats.</p> <p>It will also conduct a number of training programs all over the country from time to time, which will be attended by CISOs and technical officials from the central government, state governments, PSBs, UTs, PSUs, defense PSUs and technical arms of the Army, Navy, and Air Force.</p> <p>Deep-Dive training programme:</p> <p>It specifically aims at educating and enabling CISOs to understand cyberattacks and get the necessary exposure to the latest technologies for safeguarding e-infrastructure.</p> <p>The training focuses on providing a holistic view of legal provisions, enabling CISOs to formulate policies for cybersecurity and build concrete cyber crisis management plans.</p>	<p>It is a multi-domain and multi-sectoral index that is intended to be used to assess the overall holistic development, performance & progress of panchayats.</p> <p>It takes into account various socio-economic indicators and parameters to gauge the well-being and development status of the local communities within the jurisdiction of a panchayat.</p> <p>It would play a significant role for performance evaluation and progress assessment in achieving the localization of Sustainable Development Goals in rural area.</p> <p>Under this the Local Indicators Framework on nine themes of Localization of Sustainable Development Goals was prepared. Statement 1 is correct.</p> <p>The nine themes considered are poverty free and enhanced livelihood in village, healthy village, child friendly village, water sufficient village, clean and green village, village with self-sufficient infrastructure, socially just and socially secured villages, village with good governance, and women friendly village.</p> <p>Ranks: This Index ranks panchayats on the basis of scores and categorises them into four grades. Statement 2 is correct.</p> <p>Those with score under 40 per cent fall in grade D, 40-60 per cent in grade C, 60-75 per cent in grade B, 75 to 90 per cent in category A, while those scoring above 90 per cent will be categorised as A+.</p> <p>Significance:</p> <p>It shall provide valuable insights into the areas that require attention for improvement within the rural areas under the jurisdiction of the panchayats. It helps in identifying disparities, achievement of development goals, and formulating targeted policies and interventions to enhance the overall well-being and quality of life of rural communities.</p>
40.	<p>C</p> <p>Recently, the Union Minister of State for Panchayati Raj informed Lok Sabha about the Panchayat Development Index.</p>	<p>41. C</p> <p>Garba is a traditional dance form from Gujarat, India, primarily performed during the Navratri festival to worship the Hindu goddess Durga. Statement 1 is correct.</p>

	<p>Origins and Meaning: The term "Garba" comes from "Garbha" (womb) and "Deep" (lamp). The dance is performed around a central lamp or a representation of the Goddess, symbolizing life, death, and rebirth.</p> <p>Dance Style: Garba is characterized by energetic, circular movements, clapping hands, and intricate footwork, reflecting the cyclical nature of life.</p> <p>Chhau dance is a semi-classical Indian dance combining martial and folk traditions that originated in the Kalinga (Odisha) area from Mayurbhanj and spread to West Bengal and Jharkhand in various forms.</p> <p>In 2010, it was included in the UNESCO's Representative List of Intangible Cultural Heritage of Humanity. Statement 2 is correct.</p> <p>Kalaripayattu is a martial art based on the ancient knowledge of the human body. Statement 3 is incorrect.</p> <p>It originated in Kerala during 3rd century BC to the 2nd century AD. It is now practised in Kerala and in some parts of Tamil Nadu.</p> <p>The place where this martial art is practised is called a 'Kalari'. It is a Malayalam word that signifies a kind of gymnasium. Kalari literally means 'threshing floor' or 'battlefield'. The word Kalari first appears in the Tamil Sangam literature to describe both a battlefield and combat arena. It is considered to be one of the oldest fighting systems in existence.</p> <p>o It is also considered as the father of modern Kung - Fu.</p> <p>Ramman is an Indian religious event and ritual theatre that takes place in the Garhwal area. It is a Hindu community celebration held in the Saloor Dungra hamlet in the Painkhanda Valley in Uttarakhand's Chamoli district.</p> <p>It was included in UNESCO'S List of Intangible Cultural Heritage in 2009. Statement 4 is correct.</p>	<p>Generally, institutions and High Networth Individuals (HNIs) invest in Alternative Investment Funds as substantial investments are required. These investment vehicles adhere to the Securities and Exchange Board of India (Alternative Investment Funds) Regulations, 2012. AIFs can be formed as a company, Limited Liability Partnership (LLP), trust, etc.</p> <p>Statement 1 is incorrect: Resident Indians, NRIs, and foreign nationals can invest in these funds. The minimum investment limit is Rs. 1 crore for investors, whereas the minimum investment amount for directors, employees, and fund managers is Rs. 25 lakhs.</p> <p>Statement 2 is correct: AIFs come with a minimum lock-in period of three years. Also, the number of investors in every scheme is restricted to 1000. In the case of an angel fund, no scheme shall have more than forty-nine angel investors.</p> <p>AIFs are not directly related to stock markets. Volatility in these funds is less, particularly when compared with traditional equity investments. So it might be suitable for risk-averse investors looking for stability.</p> <p>Statement 3 is correct: Hedge funds are category-III AIFs that pool money from accredited investors and institutions. These funds invest in both domestic and international debt and equity markets. They adopt an aggressive investment strategy to generate returns for investors.</p>
42.	<p>B</p> <p>Alternative Investment Fund (AIF) is a special investment category that differs from conventional investment instruments. It is a privately pooled fund.</p>	<p>43. D</p> <p>Mikko Ollikainen, the head of the Adaptation Fund, expressed worry about not receiving adequate funds at COP28.</p> <p>Statement 1 is correct: The Adaptation Fund (AF) was set up under the Kyoto Protocol of the United Nations Framework Convention on Climate Change (UNFCCC). It was established in 2001 and officially launched in 2007 at CoP 7 in Marrakech, Morocco.</p>


<p>The Adaptation Fund has only received around half of the fund at the ongoing COP28 compared to what they minimally require. Statement 2 is correct: The Adaptation Fund finances climate change adaptation and resilience activities in developing countries that are vulnerable to the adverse effects of climate change and are Parties to the Kyoto Protocol.</p> <p>The Fund is financed in part by government and private donors and also from a two percent share of proceeds of Certified Emission Reductions (CERs) issued under the Protocol's Clean Development Mechanism (CDM) projects. Statement 3 is correct.</p> <p>The Adaptation Fund Board (AFB) oversees and manages the Adaptation Fund.</p> <p>The Global Environment Facility (GEF) provides secretariat services to the AFB upon invitation from Parties, and the World Bank serves as trustee of the Adaptation Fund on an interim basis.</p> <p>The Secretariat of the Adaptation Fund Board is made up of an international workforce based in Washington DC, and it offers the Board research, advising, administrative, and a variety of other services.</p> <p>The Adaptation Fund Board convenes twice a year, at the very least.</p> <p>Unless the Board decides to convene in conjunction with meetings of the parties to the Kyoto Protocol or the subsidiary organizations of the UN Framework Convention on Climate Change, the meetings typically take place in Bonn, Germany.</p> <p>The AFB has been granted legal capacity by the German Parliament.</p> <p>The AFB is made up of 16 members and 16 alternates who represent regional constituencies, Annex I nations, Non-Annex I countries, Least Developed Countries (LDCs), Small Island Developing States (SIDSs), and LDCs.</p> <p>The Adaptation Fund is entrusted to the World Bank as trustee. Statement 4 is correct.</p>	<p>44. C</p> <p>JT-60SA: World's biggest experimental nuclear fusion reactor inaugurated in Japan</p> <p>Context: JT-60SA is a joint initiative between European Union and Japan and is a forerunner for under-construction International Thermonuclear Experimental Reactor (ITER).</p> <p>About ITER: ITER aims to demonstrate nuclear fusion as a clean green source of energy.</p> <p>It is located in France and is a collaboration of China, EU, India, Japan, Korea, Russia and US.</p> <p>It aims to build the world's largest tokamak, a magnetic fusion device designed to tap into the potential of fusion energy.</p> <p>The tokamak operates based on same principles that power the Sun and stars.</p> <p>Using a robust magnetic field, it fuses hot plasma, and can reach temperatures of over 150 million degrees Celsius (ten times hotter than Sun's core). Nuclear fusion is a process in which two or more light atomic nuclei fuse to produce a heavier nucleus and release a tremendous amount of energy. In nuclear fission, atoms are split apart into lighter elements releasing energy. All nuclear power plants use nuclear fission.</p> <p>Advantages of fusion: Release of abundant energy and fuel is nearly inexhaustible. Neither produces CO₂ and other greenhouse gases nor radioactive waste.</p> <hr/> <p>45. C</p> <p>The goal of generative models is not to optimize decision-making processes, but rather to generate new data that resembles the training data.</p> <p>This can be used for a variety of purposes, such as data augmentation, synthetic data generation, or creative applications like art and music generation.</p> <p>Statement 2 is correct. Generative adversarial networks (GANs) are a popular technique used in Generative AI.</p>
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	<p>GANs consist of two neural networks that work against each other to generate high-quality, realistic data. The generator network creates new data based on the training data, while the discriminator network tries to differentiate between real and generated data. Statement 3 is correct.</p> <p>What is Generative AI?</p> <p>Generative AI refers to artificial intelligence that creates new content, including text, images, music, and videos. Statement 1 is correct.</p> <p>It's powered by large, multi-tasking foundation models requiring minimal training for specific use cases.</p> <p>For example, AI models like DALL-E or DeepDream can generate unique images, OpenAI's Jukebox can compose new music pieces in various styles, Tools like GPT -3 can write articles, create poetry, or generate code, etc.</p>	<p>provides for the reorganization of the state of Jammu and Kashmir into the union territories of Jammu and Kashmir (with legislature) and Ladakh (without legislature).</p> <p>Key Provisions of the Bill:</p> <p>Increases the total number of seats in the J&K Assembly from 107 to 114. This is based on the report of the Delimitation Commission. Statement 1 is correct.</p> <p>Seeks to provide reservation of 9 seats for Scheduled Tribes for the first time. Statement 2 is correct.</p> <p>Empowers the Lieutenant-Governor to nominate 3 members in the Assembly: Statement 3 is correct.</p> <p>Two members from the Kashmiri migrant community including one woman and Third member should be a representative of people from PoK who took refuge in India following the wars with Pakistan in 1947, 1965 and 1971.</p>
46. D	<p>Why in the News?</p> <p>Lok Sabha has passed Jammu & Kashmir Reservation (Amendment) Bill, 2023 and the Jammu and Kashmir Reorganisation (Amendment) Bill, 2023.</p> <p>What is Jammu & Kashmir Reservation (Amendment) Bill, 2023?</p> <p>Aim: To amend the Jammu and Kashmir Reservation Act, 2004.</p> <p>Note: The J&K Reservation Act, 2004 provided reservation in jobs and admission in professional institutions to Scheduled Castes (SCs), Scheduled Tribes (STs) and other socially and educationally backward classes.</p> <p>Key Provisions of the Bill:</p> <p>The Bill seeks to replace the term "weak and underprivileged classes (social castes)" in the J&K Reservation Act, 2004 to "other backward classes" as declared by the Union Territory.</p> <p>What is Jammu and Kashmir Reorganisation (Amendment) Bill, 2023?</p> <p>Aim: To amend the Jammu and Kashmir Reorganisation Act, 2019.</p> <p>Note: The J&K Reorganisation Act, 2019</p>	47. C <p>The European Space Agency's Solar Orbiter recently captured the most detailed image of the Sun's full disc and outer atmosphere, the corona, to date.</p> <p>About Solar Orbiter:</p> <p>It is a Sun-observing satellite with 10 science instruments, all designed to provide unprecedented insight into how the sun works.</p> <p>It is conceived to perform a close-up study of our Sun and inner heliosphere- the uncharted innermost regions of our Solar System.</p> <p>It is a joint mission of the European Space Agency (ESA) and NASA. Statement 1 is correct. It is the most complex scientific laboratory ever to have been sent to the Sun.</p> <p>o It will take images of the Sun from closer than any spacecraft before and, for the first time, look at its uncharted polar regions.</p> <p>The mission, launched on February 10, 2020, released its first images in June of that year.</p> <p>After multiple gravitational assist manoeuvres at Earth and Venus, it started its full science operations in December 2021.</p>

	<p>It follows an elliptical orbit around the sun, with the closest point, the perihelion, at about 25 million miles (40 million kilometres) from the sun, which is closer than the orbit of Mercury.</p> <p>Instruments: It carries six remote-sensing instruments to observe the Sun and the solar corona and four in-situ instruments to measure the solar wind, energetic particles, and electromagnetic fields. Statement 2 is correct.</p> <p>The mission is scheduled to last until at least 2027.</p>		<p>onto a powerful laser beacon transmitted from NASA's Table Mountain Facility in California. Achieving high data rates relies on extremely precise pointing, which is akin to hitting a small target from a great distance while both are in motion.</p> <p>This precision is necessary for the laser transceiver to track its target despite vibrations on the spacecraft.</p> <p>Psyche Spacecraft</p> <p>NASA's Psyche mission is a ground-breaking scientific endeavour aimed at exploring a unique and intriguing metallic asteroid called 16 Psyche. This mission promises to provide valuable insights into the early history of our solar system, the formation of planetary bodies, and the mysteries of Earth's core. The primary goal of the Psyche mission is to unravel the mysteries of 16 Psyche, a metallic asteroid located in the asteroid belt between Mars and Jupiter.</p> <p>By studying this asteroid up close, scientists hope to gain a deeper understanding of the processes that shaped the terrestrial planets, including Earth.</p>
48.	<p>C</p> <p>NASA's Deep Space Optical Communications (DSOC)</p> <p>Central Idea: NASA's DSOC experiment on boarded to Psyche spacecraft, recently demonstrated successful transmission of data over near-infrared laser signals to Earth.</p> <p>This technology addresses the challenge of transmitting vast amounts of data over long distances from spacecraft, moving at high speeds in deep space.</p> <p>Deep Space Optical Communications (DSOC): NASA's DSOC experiment introduces near-infrared laser signals for spacecraft communication. Statement 1 is correct.</p> <p>DSOC promises data rates at least 10 times faster than conventional radio communication systems, leading to enhanced data transfer rates, higher resolution images, increased scientific data volume, and even real-time video streaming. Statement 2 is correct.</p> <p>DSOC's laser communication technology is comparable to how fibre optics revolutionized Earth-based tele communications. Statement 3 is correct.</p> <p>Psyche Spacecraft and DSOC:</p> <p>The Psyche spacecraft is the first to carry a DSOC transceiver, which will test high-bandwidth optical communication with Earth during its initial two years of travel to the asteroid belt.</p> <p>DSOC's successful "first light" milestone was reached when the transceiver locked</p>		<p>49.</p> <p>B</p> <p>Recently, researchers at the Indian Institute of Science Education and Research, Bhopal (IISER Bhopal), have completed the first-ever genome sequencing of the jamun tree (<i>Syzygium cumini</i>).</p> <p>It is also known as jambolan, or black plum tree is a Myrtaceae plant family tropical tree.</p> <p>Its natural range includes the Indian sub-continent and South-East Asia. The genus <i>Syzygium</i> contains 1,193 recognised species, including jamun.</p> <p>Soil: It can be grown on a wide range of soils. However, for high yield potential and good plant growth, deep loam and a well-drained soil are needed.</p> <p>It can grow well under salinity and waterlogged conditions too.</p> <p>Climate: It prefers to grow under tropical and subtropical climate. Statement 1 is correct.</p>

<p>It is also found growing in lower ranges of the Himalayas up to an altitude of 1300 meters.</p> <p>It requires dry weather at the time off towering and fruit setting. Statement 2 is incorrect.</p> <p>In subtropical areas, early rain is considered to be beneficial for ripening of fruits and proper development of its size, colour and taste.</p> <p>Benefits: In Ayurveda the black plum is used to treat ailments such as stomach discomfort, arthritis, cardiac problems, flatulence, asthma, diarrhoea, and stomach spasms. Statement 3 is correct.</p> <p>Highlights of the genome sequencing:</p> <p>The aim of this research was to gain new functional and evolutionary insights from the jamun genome, which could be responsible for the wide range of pharmacological properties of this species conferred by the bioactive compounds that act as nutraceutical agents in modern medicine.</p> <p>The jamun genome has a higher number of coding genes resulting from gene duplication or neopolyploidy events, compared to the other two sequenced species from this genus.</p> <p>The analyses revealed the key genes involved in facilitating the adaptive evolution of Jamun.</p> <p>Among these, 14 genes allow for the biosynthesis of terpenoids, which are a diverse class of metabolites responsible for plant defence responses. They also contribute significantly to antioxidant and anti-inflammatory properties.</p> <p>Alkaloids, another type of metabolite, are also found abundantly in different plant parts and offer curative properties against many diseases.</p> <p>This combination of alkaloids and flavonoids gives the plant its anti-arthritis properties.</p> <p>To explain the anti-diabetic properties of this plant, the researchers discovered the presence of glucosides, another class of metabolites that prevent the conversion of starch into sugar.</p>	<p>50. B</p> <p>India Infrastructure Report, 2023</p> <p>The India Infrastructure Report 2023 was recently released by former vice-president M. Venkaiah Naidu that calls for radical reforms in urban planning and development to address the issue of slums and sprawl.</p> <p>The report covered a wide range of various complex issues related to urban planning and development. The report is a joint effort by:</p> <p>Infrastructure Development Finance Company (IDFC) Foundation o Infrastructure Development Corporation (Karnataka) Ltd (iDeCK) o National Institute of Urban Affairs (NIUA). Statement 1 is incorrect.</p> <p>The purpose of the report is to provide better urban development in the region as well as provide a key link with neighbouring states. The report can be used for the planners and policy-makers as a road map on how to improve the existing cities through urban redevelopment.</p> <p>It is a comprehensive report that highlights the needs and the existing gaps and provide solutions for moving forward on the path of accelerated development. Statement 2 is correct.</p> <p>Highlights of the report - It provides solutions to make Indian cities sustainable. It contains 25 chapters by prominent names in the urban development and policy ecosystem on the current state of urban development in India.</p> <p>Smart Cities Mission (SCM) has been the "most important initiative" to reform urban management and improve the urban situation. Statement 3 is correct.</p> <p>The rural migration puts more pressure on infrastructure. Flawed urban planning and development-control norms are among the drivers of urban sprawl in the country.</p> <p>It will aid in powering growth and help the country to become one of the top three largest economies in the world. The digital technology has the potential to transform</p>
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	<p>in shaping the urban landscape of India. National Institute of Urban Affairs (NIUA) - Established in 1976.</p> <p>It aims to bridge the gap between research and practice on issues related to urbanization and suggest ways and mechanisms to address urban challenges in the country.</p> <p>It is a Central Autonomous Body under the Ministry of Housing and Urban Affairs.</p> <p>It is a national think-tank undertaking multi-disciplinary research, knowledge exchange and capacity development, policy planning and advocacy in the domain of urban development.</p>		<p>SMRs and their Applications, a one-stop shop for countries to coordinate support related to all aspects of SMR development, deployment.</p>
51.	<p>A</p> <p>Small Modular Reactors (SMRs)</p> <p>In recent times the Government is working on new technologies such as Small Nuclear Reactors to make clean energy transition. Small modular reactors (SMRs) are advanced nuclear reactors that have a power capacity of up to 300 MW (e) per unit, which is about 1/3rd of the generating capacity of traditional nuclear power reactors. Statement 1 is correct. It can produce a large amount of low-carbon electricity. Given their smaller footprint, SMRs can be sited on locations not suitable for larger nuclear power plants. Statement 3 is correct.</p> <p>SMRs are smaller reactors that can be factory-built, unlike conventional nuclear reactors that are built on site and cannot be a replacement to conventional large-sized nuclear power plants.</p> <p>SMRs have reduced fuel requirements. Power plants based on SMRs may require less frequent refuelling, every 3 to 7 years, in comparison to between 1 and 2 years for conventional plants. Statement 2 is incorrect.</p> <p>Some SMRs are designed to operate for up to 30 years without refuelling. Both public and private institutions are actively participating in efforts to bring SMR technology to fruition within this decade. The IAEA has established the Platform on</p>	52.	<p>A</p> <p>The UN Charter is the founding document of the United Nations. Based on the powers conferred through it, the UN can take action on a wide variety of issues. The Charter is considered an international treaty, meaning UN Member States are "bound by it". However, in practice, there is little that member countries can be forced to do.</p> <p>Article 99 of the UN Charter: "The Secretary-General may bring to the attention of the Security Council any matter which in his opinion may threaten the maintenance of international peace and security." It is seen as a discretionary power. Option (a) is correct.</p> <p>Past examples include the upheaval in the Republic of the Congo in 1960 following the end of Belgium's colonial rule and a complaint by Tunisia in 1961 against France's naval and air forces launching an attack.</p>
		53.	<p>C</p> <p>Nuclear fusion is the process where two light atomic nuclei come together to form a heavier nucleus. This process releases a significant amount of energy. Statement 1 is correct.</p> <p>Experimental nuclear fusion reactors typically use isotopes of hydrogen as fuel. The most common combination is deuterium (a form of hydrogen with one neutron) and tritium (a form of hydrogen with two neutrons). These isotopes are more feasible for controlled fusion reactions on Earth. Statement 2 is incorrect.</p> <p>The sun and other stars primarily generate energy through nuclear fusion. In the sun's core, hydrogen nuclei (protons) undergo fusion to form helium, releasing a tremendous amount of energy in the process. Statement 3 is correct.</p> <p>Fusion reactions generally produce less long-lived radioactive waste compared to fission reactions. In a fusion reaction, the</p>

	<p>fuel consists of isotopes of hydrogen, and the products are usually lighter elements. The waste produced is typically less harmful and has a shorter half-life compared to the radioactive waste produced in nuclear fission reactions. Statement 4 is correct.</p>		<p>A phase-down of climate-warming hydrofluorocarbon (HFC) refrigerants at a faster rate than is required under the Kigali Amendment to the Montreal Protocol.</p> <p>Global Cooling Pledge issued with the COP28 provides a real opportunity to act.</p> <p>The pledge provides a strong political push to take immediate steps to reduce emissions, increase passive strategies, improve energy efficiency while phasing down HFCs etc.</p>
54.	<p>B</p> <p>Global Cooling Watch 2023 report</p> <p>Context: United Nations Environment Programme (UNEP) releases Global Cooling Watch 2023 report.</p>  <p>More about the report</p> <p>The report demonstrates the potential and the pathways to achieve near zero emissions from cooling. Cooling acts as a double burden on climate change by raising the demand for power at one end and inducing Global warming due to the release of refrigerant gases in cooling equipment. Emissions from cooling are predicted to account for more than 10 per cent of global emissions in 2050.</p> <p>Key Highlights</p> <p>82% of global cooling-related GHG emissions came from G20 countries, in 2022 Under the current approach to cooling, the installed capacity of cooling equipment globally will triple between now and 2050.</p> <p>Recommendations</p> <p>Passive strategies to address extreme heat and reduce cooling demand in buildings and in the cold chain. Higher energy efficiency standards and norms for cooling equipment.</p>	55.	<p>C</p> <p>The Gulf of Thailand is bordered s by Cambodia, Thailand, Malaysia, and Vietnam</p>
		56.	<p>B</p> <p>Statement 2 is incorrect: Upon registration, such a person will have the same rights obligations as an Indian citizen, but will not be entitled to be included in any electoral roll for a period of 10 years.</p> <p>More about the news:</p> <p>The Supreme Court inquired about the number of individuals who acquired citizenship under Section 6A of the Citizenship Act, 1955, implemented after the Assam accord.</p> <p>This provision allows individuals who arrived in Assam between January 1, 1966, and March 25, 1971, from Bangladesh to apply for Indian citizenship. The court, hearing challenges to the provision, highlighted the historical context, considering India's role in the creation of Bangladesh during the war.</p> <p>The Chief Justice noted that Section 6A addresses not just illegal immigration but a humanitarian aspect connected to historical events.</p> <p>The petitioner argued that the provision, by not protecting those arriving after atrocities, may undermine democratic principles and the rule of law.</p> <p>What is Section 6A of the Citizenship Act, 1955:</p> <p>Section 6A is a special provision inserted into the 1955 Act in furtherance of a</p>

<p>Memorandum of Settlement called the 'Assam Accord' signed on August 15, 1985 by the then Rajiv Gandhi government with the leaders of the Assam Movement to preserve and protect the Assamese culture, heritage, linguistic and social identity. Statement 1 is correct.</p> <p>Under Section 6A, foreigners who had entered Assam before January 1, 1966, and been "ordinarily resident" in the State, would have all the rights and obligations of Indian citizens. Statement 3 is correct.</p> <p>Those who had entered the State between January 1, 1966 and March 25, 1971 would have the same rights and obligations except that they would not be able to vote for 10 years.</p> <p>What was Assam accord:</p> <p>The Assam Accord was signed in 1985 between the Union government and the All Assam Students' Union at the end of a 6-year-long agitation against the influx of migrants from Bangladesh into the state. It determines who is a foreigner in the state of Assam.</p> <p>Clause 5 of the Assam Accord states that January 1, 1966 shall serve as the base cut-off date for the detection and deletion of "foreigners".</p> <p>But it also contains provisions for the regularization of those who arrived in the state after that date and up till March 24, 1971.</p> <p>Some facts about National Register of Citizens (NRC):</p> <p>National Register of Citizens, 1951 is a register prepared after the conduct of the Census of 1951 in respect of each village, showing the houses or holdings in a serial order and indicating against each house or holding the number and names of persons staying therein. The NRC was published only once in 1951 and since then, it has not been updated until 2019.</p> <p>The NRC of 1951 and the Electoral Roll of 1971 (up to midnight of 24 March 1971) are together called Legacy Data. Persons and their descendants whose names appeared in these documents are certified as Indian citizens.</p>	<p>57. B</p> <p>The Odisha Government recently invoked the Orissa Essential Services (Maintenance) Act (ESMA) prohibiting strikes by paramedical staff, including nurses, pharmacists, technicians, Class III and IV employees, to ensure that medical services are not disrupted.</p> <p>About Essential Services Maintenance Act (ESMA):</p> <p>It is an act of the Indian Parliament enacted in 1968 to assure the supply of certain services that, if impeded, would harm people's daily lives.</p> <p>It is enforced to prohibit striking employees from refusing to work in certain essential services. Employees cannot cite bandhs or a curfew as an excuse not to report to work. Statement 1 is correct.</p> <p>Which services fall under this category?</p> <p>Services relating to public conservation, sanitation, water supply, hospitals, or national defence are essential.</p> <p>Any establishment involved in producing, delivering, or distributing petroleum, coal, electricity, steel, or fertiliser also gets classified as providing essential services. Aside from that, any banking-related service may be subject to ESMA.</p> <p>This statute also applies to communication and transportation services and any government initiative relating to the acquisition and distribution of food grains.</p> <p>State governments, acting alone or collaborating with other state governments, can enforce their respective acts in specified territories. Statement 2 is incorrect.</p> <p>Each state has its own ESMA, with provisions that differ slightly from the federal statute.</p> <p>As a result, if the nature of the strike disturbs only one or more states, the states can initiate it.</p> <p>The Act also allows states to choose the essential services on which to enforce ESMA.</p> <p>In a nationwide interruption, particularly involving railways, the central government may activate the ESMA.</p>
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	<p>What actions can be taken against the employees?</p> <p>Persons who commence the strike as well as those who instigate it are liable to disciplinary action, which may include dismissal.</p> <p>As the strike becomes illegal after ESMA is invoked, legal action can also be taken against these employees. Statement 3 is correct.</p> <p>Any police officer is empowered to arrest the striking person without a warrant.</p> <p>Persons participating in or instigating the strike are punishable with imprisonment, which may extend to one year, or with fine, or with both.</p>	<p>Funding to states would be made on the basis of the critical appraisal of State Higher Education Plans, which would enlist each state's strategy to address issues of equity, access, and excellence in higher education.</p> <p>PM-USHA places greater emphasis on the improvement of the quality of teaching and learning processes in order to produce employable and competitive graduates, postgraduates and PhDs.</p> <p>The programme focuses on state higher educational institutions and draws upon the best practices from colleges and universities across the nation.</p>
58. B	<p>The Union Education Minister recently urged the Odisha Chief Minister to implement the PM-USHA scheme for higher education in the state.</p> <p>About Pradhan Mantri Uchchatar Shiksha Abhiyan (PM-USHA):</p> <p>It was launched in 2013 as a centrally sponsored programme to improve access, equity, and quality in higher education through the planned development of higher education at the state level. Statement 1 is incorrect.</p> <p>It aims to work with 300-plus state universities and their affiliated colleges.</p> <p>Objectives:</p> <p>creating new academic institutions, expanding and upgrading the existing ones, developing institutions that are self-reliant in terms of quality education, professionally managed, and characterized by a greater inclination towards research.</p> <p>Funding:</p> <p>It aims at providing strategic funding to eligible state higher educational institutions. Statement 2 is correct.</p> <p>The central funding is based on norms and is outcome-dependent. Funds flow from the central ministry through the state governments/union territories before reaching the identified institutions.</p>	<p>59. A</p> <p>Recently, Conference of Parties (COP28) President Dr. Sultan Al Jaber and the Kingdom of Saudi Arabia announced the official launch of the Oil and Gas Decarbonization Charter (OGDC).</p> <p>It is a dedicated initiative for the oil and gas sector.</p> <p>It aims to induce substantial impact in addressing climate challenges.</p> <p>Currently, 50 companies, collectively responsible for over 40 percent of global oil production, have committed to the OGDC.</p> <p>National Oil Companies have shown historic participation, constituting over 60 percent of the total signatories, marking a noteworthy shift towards decarbonization within this sector.</p> <p>It is integral to the Global Decarbonization Accelerator (GDA).</p>
		<p>60. B</p> <p>Recently, the Minister of State for Home Affairs informed in the Rajya Sabha that National Automated Fingerprint Identification System (NAFIS) has been established at 1022 locations across the country.</p> <p>It is a Pan-India searchable database of crime and criminal-related fingerprints. Statement 2 is correct. It is managed by the Central fingerprint bureau at the National Crime Records Bureau (NCRB), based in New Delhi. Statement 1 is correct.</p>

<p>It functions as a central information repository by consolidating fingerprint data from all states and Union Territories. It enables law enforcement agencies to upload, trace, and retrieve data from the database in real time on a 24×7 basis.</p> <p>With the help of this it is possible to locate a person of interest in a matter of minutes and connect that individual's name to any active warrants, warnings, or information about related criminal conduct stored in other police information reference systems.</p> <p>Working of NAFIS</p> <p>It assigns a unique 10-digit National Fingerprint Number for each criminal, based on biometrics. Statement 3 is incorrect.</p> <p>The unique ID will be used for a lifetime of an offender. Different crimes registered under different FIRs will be logged as incidents belonging to the same National Fingerprint Number.</p> <p>The first two digits of the ID will be the state code of the state where the criminal is registered, followed by a sequence number. The state partition will have IDs belonging to a state.</p>	<p>The timing of this migration is tuned to the natural rhythms of sunrise and sunset.</p> <p>Animals dwelling in the mesopelagic layer (layer that extends from 200 to 1,000 meters below the ocean's surface) actively remove substantial amounts of carbon from the upper ocean as they feed on surface-dwelling plankton. When these organisms return to deeper waters, they carry the carbon with them.</p> <p>Even within the mesopelagic layer or twilight zone, some migratory animals become part of the food chain, passing on the carbon they have consumed to their predators.</p> <p>The carbon-rich waste produced by the predators then sinks to the ocean floor, where it remains trapped for millennia. This natural process is an important carbon sink that helps regulate the concentration of carbon dioxide in the atmosphere</p>
<p>61. D</p> <p>Diel Vertical Migration (DVM): Diel vertical migration (DVM) is the daily, synchronized movement of marine animals between the surface and deep layers of the open ocean.</p> <p>It's also known as diurnal vertical migration. This type of migration is the largest animal migration on the planet and is undertaken every single day by trillions of animals in every ocean. This type of migration is followed by the deep-sea marine animal especially tiny free-floating zooplanktons. It is more than a survival strategy that plays a pivotal role in carbon sequestration.</p> <p>The core idea behind DVM is a delicate balance between the need to feed and to avoid becoming prey.</p> <p>Zooplankton can stay in dangerous waters during the day, looking for food or swim down to the twilight zone and risk starvation.</p>	<p>62. D</p> <p>Mugger Crocodile</p> <p>In the recent Cyclone Michaung, the 'Mugger' crocodile was spotted on road near Chennai.</p> <p>Mugger Crocodile is an apex predator that is also called as marsh crocodile (<i>Crocodylus palustris</i>). It is known for being shy and reclusive that have had almost no negative interaction with humans for decades. Statement 2 is correct.</p> <p>Muggers are highly social and their social behavior includes gregarious behavior, communication, territorial activities and dominance interactions.</p> <p>It is listed as "vulnerable" by International Union for Conservation of Nature (IUCN).</p> <p>CITES Appendix I. Statement 1 is correct.</p> <p>It lives in the Indian subcontinent as well as other countries in southern Asia.</p> <p>Muggers are primarily carnivorous, eating mostly fish, frogs, crustaceans, insects, mammals, birds and sometimes monkeys and squirrels. They also scavenge on dead animals.</p>

<p>63.</p>	<p>The Moyar River is home to one of the largest mugger populations in Tamil Nadu. The use of dynamite for fishing along parts of the river pose a threat to crocodiles. The introduction of invasive species in the river ecosystems also pose threat to the crocodile species.</p> <p>C</p> <p>Global Cooling Pledge</p> <p>Recently 63 countries, excluding India signed up the World's first-ever pledge to drastically cut cooling emissions at the ongoing COP28 climate summit. Cooling emissions are essentially emissions generated from refrigerants, used in appliances like ACs and refrigerators and the energy used for cooling. The cooling emissions now account for 7% of global greenhouse gas emissions and are expected to triple by 2050.</p> <p>HFC-134a, a form of HFC and most commonly used in domestic fridges, has a global warming potential of 3,400 times that of CO₂. The Kigali Amendment to the Montreal Protocol, agrees to reduce HFC consumption by 80% by 2047.</p> <p>A recent report by International Energy Agency (IEA) indicate that since 1990, the energy consumption for space cooling (the process of cooling indoors) has more than tripled.</p> <p>According to a report by the United Nations Environment Programme (UNEP) and IEA the number of global cooling devices is expected to increase from 3.6 billion to 9.5 billion by 2050.</p> <p>The situation is set to get worse as rising global temperatures will lead to a large-scale cooling demand the use of more ACs and refrigerators would cause more cooling emissions.</p> <p>Currently, cooling emissions aren't a huge proportion of global greenhouse gases but it is likely to change soon if not addressed.</p> <p>Global Cooling Pledge - It commits countries to reduce their cooling-related emissions by at least 68% compared to 2022 level by 2050. Statement 1 is correct.</p> <p>The pledge is signed by 63 countries including the US, Canada, and Kenya. India has not signed the pledge, which is likely</p>	<p>to see the greatest growth in demand for cooling in the coming decades. Statement 3 is correct.</p> <p>India is not willing to undertake targets above those committed to in 1992 under the multilateral Montreal Protocol to regulate production and consumption of ozone depleting chemicals and hydrofluorocarbons used in cooling.</p> <p>The pledge includes a target to establish a minimum energy performance standard by 2030. Statement 2 is correct.</p> <p>64. A</p> <p>Permakore</p> <p>In recent times the Koya tribe have moved on from using traditional Indian Bison horns to palm leaves as a gesture of conservation of the Indian Bison to craft their traditional flute, Permakore.</p> <p>Permakore is traditional flute that is made from the Indian Bison horn. It is used by the indigenous Koya tribe inhabiting the Papikonda hill range in Andhra Pradesh.</p> <p>Another name for the Papikondalu hill range is the 'Bison hill range,' which is derived from the fact that it is home to the Indian Bison.</p> <p>In the Koya language, 'Permam' stands for Indian Bison or Guar, and 'Kore' stands for 'horn' and thus, the flute made of Bison horn is called Permakore. Permakore is played at a designated time and place to give a call to the entire village to go hunting in the forest.</p> <p>This bond between the palm tree and Koyas can be dubbed as a new chapter in the tribe's culture.</p> <p>The Koyas believe that a player could make the best Permakore with the palm leaf as he understands the intricacies of the craft. The palm-leaf instrument has a gentle curve like the Bison horn. The flute made of the leaf is sustainable for a few years but the one that is made of Bison horn can be used for generations if preserved.</p> <p>65. B</p> <p>A team of astronomers have recently detected M star using Hobby-Eberly Telescope, which is not only the smallest star but it's 100 times less luminous than</p>
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	<p>sun. M Star is the smallest star in Earth's solar system. Statement 1 is correct. It is not only smaller than the Sun in Earth's solar system, but it's 100 times less luminous than Sun. Statement 2 is incorrect.</p> <p>They are also known as red dwarfs. It is a Cool and dim star which are the most common stars in our galaxy. Statement 3 is correct. M dwarfs are the most common stars in the galaxy, making up over 70% of all stars.</p>	<p>Currently, the CD focuses its work on the following agenda items:</p> <p>Cessation of the nuclear arms race and nuclear disarmament.</p> <p>Prevention of nuclear war, including all related matters.</p> <p>Prevention of an arms race in outer space.</p> <p>Effective international arrangements to assure non-nuclear-weapon states against the use or threat of use of nuclear weapons.</p> <p>New types of weapons of mass destruction and new systems of such weapons; radiological weapons.</p> <p>Comprehensive programme of disarmament. Transparency in armaments.</p> <p>Working:</p> <p>The Conference is comprised of 65-member states, including the five NPT nuclear-weapon states and 60 other states of key military significance.</p> <p>In addition, every year, non-member states participate, upon their request, in the CD's work.</p> <p>The CD has three sessions each year.</p> <p>The CD conducts its work by consensus.</p> <p>Relationship with the United Nations (UN): While the CD is independent of the United Nations, its secretary is appointed by the UN Secretary-General.</p> <p>It is required to consider recommendations from the UNGA, and it submits reports annually or more often to the UNGA. Statement 2 is correct.</p> <p>The CD adopts its own Rules of Procedure and its own agenda, taking into account the recommendations of the UNGA and the proposals of its member states. Statement 3 is correct.</p>
66.	<p>C</p> <p>India's Foreign Secretary and the UN Under Secretary General recently exchanged views on the Conference on Disarmament, where India is poised to assume the first presidency for the 2024 session.</p> <p>About Conference on Disarmament:</p> <p>The CD was formed in 1979 as the single multilateral disarmament negotiation forum of the international community after agreement was reached among Member States during the first special session of the UN General Assembly (UNGA) devoted to disarmament (1978). Statement 1 is correct.</p> <p>It succeeded other Geneva-based negotiating forums, which include the Ten-Nation Committee on Disarmament (1960), the Eighteen-Nation Committee on Disarmament (1962-68), and the Conference of the Committee on Disarmament (1969-78).</p> <p>The CD and its predecessors have negotiated such major multilateral arms limitation and disarmament agreements such as Treaty on the Non-Proliferation of Nuclear Weapons (NPT)</p> <p>Convention on the Prohibition of the Development, Production, and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction (BWC)</p> <p>Convention on the Prohibition of the Development, Production, Stockpiling, and Use of Chemical Weapons and on Their Destruction (CWC)</p> <p>Comprehensive Nuclear-Test-Ban Treaty (CTBT).</p>	<p>67. B</p> <p>As part of Atmanirbhar Bharat Abhiyan, Ministry of Food Processing Industries (MoFPI) is implementing a centrally sponsored "PM Formalisation of Micro food processing Enterprises (PMFME) Scheme. It is a centrally sponsored scheme launched in 2020. Statement 1 is correct.</p>

<p>Duration: The scheme is operational for a period of five years from 2020-21 to 2024-25 with an outlay of Rs. 10,000 Crore for supporting 2 lakh micro food processing enterprises.</p> <p>Funding:</p> <p>90:10 ratios with North Eastern and Himalayan States.</p> <p>60:40 ratios with UTs with legislature, and 100% by Centre for other UTs.</p> <p>60:40 ratios between Central and State Governments for other states.</p> <p>Objectives: The objectives of scheme are to build capability of microenterprises to enable:</p> <p>Increased access to credit by existing micro food processing entrepreneurs, FPOs, Self Help Groups and Co-operatives; Statement 2 is correct.</p> <p>Integration with organized supply chain by strengthening branding & marketing;</p> <p>Support for transition of existing 2,00,000 enterprises into formal framework; Increased access to common services like common processing facility, laboratories, storage, packaging, marketing and incubation services; Strengthening of institutions, research and training in the food processing sector; Increased access for the enterprises, to professional and technical support.</p> <p>Under this scheme micro enterprises will get credit linked subsidy at 35% of the eligible project cost with a ceiling of Rs.10 lakhs.</p> <p>The beneficiary contribution will be minimum of 10% and the balance from the loan.</p> <p>Support to FPOs/SHGs/Cooperatives:</p> <p>Seed capital will be given to SHGs (at Rs. 4 lacks per SHG) for loans to members for working capital and small tools.</p> <p>Grant for backward/ forward linkages, common infrastructure, packaging, marketing & branding. Nodal Ministry: Ministry of Food Processing Industries. Statement 3 is incorrect.</p>	<p>68. B</p> <p>Statement 1 and 3 are correct: The "Early Warnings for All" initiative is a ground breaking effort to ensure that everyone on Earth is protected from hazardous weather, water, or climate events through life-saving early warning systems by the end of 2027.</p> <p>The initiative is being led by the World Meteorological Organization (WMO) and the United Nations Office for Disaster Risk Reduction (UNDRR)</p> <p>Statement 2 is incorrect: It was launched by UN Secretary-General in March 2022.</p> <p>It calls for over \$3 billion investment over five years to strengthen:</p> <ul style="list-style-type: none"> Disaster risk knowledge Observation and forecasting Warning dissemination Response capabilities <p>It leverages existing pooled funding mechanisms, such as the Climate Risk and Early Warning Systems initiative and the Systematic Observations Financing Facility, as well as global multilateral funds including the Green Climate Fund and the development banks.</p> <p>The initiative aligns with the Sustainable Development Goals, Paris Agreement and the Sendai Framework for Disaster Risk Reduction.</p> <p>Why is there a need for Early Warning Systems?</p> <p>These systems are a cost-effective tool that saves lives, reduces economic losses and provides a nearly tenfold return on investment.</p> <p>Early warning systems have helped decrease the number of deaths resulting from hazardous weather, water, or climate events.</p> <p>They hold significance as we witness increase in frequencies of extreme climate events with climate change</p> <hr/> <p>69. D</p> <p>One Sun One World One Grid (OSOWOG)</p> <p>The idea for the One Sun One World One</p>
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<p>Grid (OSOWOG) initiative was put forth by the Hon'ble Prime Minister of India Shri Narendra Modi, at the First Assembly of the International Solar Alliance (ISA) in October 2018. He had called for connecting solar energy supply across borders. Statement 1 is correct.</p> <p>Note: The International Solar Alliance (ISA) is an alliance of more than 100 countries initiated by India, most of them being the sunshine countries, which lie either completely or partly between the Tropic of Cancer and the Tropic of Capricorn.</p> <p>OSOWOG will be developed with the World Bank's technical assistance.</p> <p>OSOWOG is planned to be completed in three phases. The first phase will entail interconnectivity within the Asian continent; the second phase will add Africa and the third phase will globalise the whole project.</p> <p>Green Grids Initiative was a program of the United Kingdom (UK). Statement 2 is correct.</p> <p>The United Kingdom and India agreed to combine forces of the Green Grids Initiative and the One Sun One World One Grid initiative and jointly launch GGIOSOWOG at the COP26 summit being hosted by the UK at Glasgow in November 2021. Statement 3 is correct.</p> <p>It targets to interconnect solar energy infrastructure under the initiative of transnational electricity grids that will be developed to deliver solar power.</p> <p>It aims to bring together the financial organizations, an international coalition of national governments, and power system operators.</p> <p>It will accelerate the construction of new infrastructures such as the electricity interconnectors, charging points, and flexible grids that are needed to deliver affordable, reliable, and secure power across the globe.</p> <p>The vision of the grid is "The Sun Never Sets"- the sun is constantly at the same point at a given point of time in certain geographical locations.</p>	<p>A Ministerial Steering Group will be set up to supervise the making of large solar power stations and wind farms in the best locations, linked together by continental scale grids crossing national borders.</p> <p>This Ministerial Steering Group includes Australia, France, India, the United Kingdom, and the United States, and will also have representatives from Africa, the Gulf, Latin America, and Southeast Asia.</p> <p>One Sun declaration</p> <p>The formation of GGI-OSOWOG was accompanied by One Sun Declaration at the COP26 climate conference in Glasgow (2021). Statement 4 is correct.</p> <p>The "One Sun Declaration", stated that, "realizing the vision of 'One Sun One World One Grid' through interconnected green grids can be transformational, enabling all of us to meet the targets of the Paris Agreement to prevent dangerous climate change, to accelerate the clean energy transition, and to achieve the sustainable development goals.</p> <p>70. D</p> <p>SEBI, India's securities market regulator, is working on introducing real-time settlement of transactions in the stock exchanges, known as T+0 settlement.</p> <p>Currently, the settlement process takes one day (T+1) after the trade date, but with T+0 settlement, funds and securities will be transferred instantly on the same day as the trade. This shift will bring operational efficiency, faster fund remittances, and immediate availability of money and shares for investors. Statement 2 is correct.</p> <p>What is the T+1 settlement cycle?</p> <p>In simple terms, T+1 settlement means that securities transactions will reflect in the demat account after a day instead of two days now under the T+2 cycle. Statement 1 is correct.</p> <p>If an investor buys a stock on Thursday, it would be shown in the demat account on Friday. Now with T+0 settlement, investors can find the purchased on the same day (i.e., Thursday)</p>
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	<p>T+2: Was introduced in 2017</p> <p>T+1: Was recently allowed in the Indian stock market (January 2023)</p> <p>T+0: May be introduced by the next financial year (2024)</p>	<p>But mills, instead of recovering 11.5% sugar, can extract just 9.5-10% and divert the balance 1.5-2% TFS to an earlier 'B-heavy' stage molasses. This molasses, having 50%-plus sugar, yields 290-320 litres of ethanol per tonne.</p> <p>A third option is not to produce any sugar and ferment the entire 13.5-14% TFS into ethanol.</p> <p>From one tonne of cane, 80-81 litres of ethanol can thus be obtained, as against 20-21 litres and 10-11 litres through the B-heavy and C-heavy molasses routes respectively.</p>																																																																																																
71.	<p>D</p> <p>Cane sugar is obtained by successive evaporation, crystallization and centrifugation. Both the sugar extraction process and the sugar refining process yield molasses, and each step of these processes output specific types of molasses:</p> <p>A-molasses (first molasses) is an intermediate by-product resulting from first sugar crystal extraction (A sugar), from initial processing at the sugar factory.</p> <p>A molasses contains 80-85% DM. If it has to be stored, it should be inverted in order to prevent crystallization. Statement 1 is correct.</p> <p>A molasses (second molasses). It has approximately the same DM content as A molasses but contains less sugar and does not spontaneously crystallize. Statement 2 is correct.</p> <p>B molasses (final molasses, blackstrap molasses, treacle) is the end by-product of the processing in the sugar factory. It still contains considerable amounts of sucrose (approximately 32 to 42%). C molasses does not crystallize and can be found in liquid or dried form as a commercial feed ingredient. Statement 3 is correct.</p> <p>Ethanol - or even 94% pure industrial-grade rectified spirit and 96% extra neutral alcohol for potable liquor - is normally made from so-called C heavy molasses.</p> <p>Mills typically crush cane with 13.5-14% total fermentable sugars (TFS).</p> <p>Around 11.5% of it can be recovered from the juice as sugar.</p> <p>The uncrystallised, non-recoverable 2-2.5% TFS goes into C-heavy molasses.</p> <p>Every tonne of this liquid, containing 40-45% sugar, gives 220-225 litres of ethanol on fermentation and distillation.</p>	<p>Table 1: Ethanol supplied to Oil Marketing Companies (In crore litres)</p> <table><tr><th>Supply Year</th><th>C-Heavy Molasses</th><th>B-Heavy Molasses</th><th>Sugarcane Juice</th><th>Surplus Rice</th><th>Damaged Grains</th><th>Maize</th><th>TOTAL</th></tr><tr><td>2013-14</td><td>38</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>38 (1.60)</td></tr><tr><td>2014-15</td><td>67</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>67 (2.33)</td></tr><tr><td>2015-16</td><td>111</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>111 (3.51)</td></tr><tr><td>2016-17</td><td>67</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>67 (2.07)</td></tr><tr><td>2017-18</td><td>151</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>151 (4.22)</td></tr><tr><td>2018-19</td><td>146</td><td>33</td><td>1</td><td>0</td><td>10</td><td>0</td><td>189 (4.92)</td></tr><tr><td>2019-20</td><td>74</td><td>68</td><td>15</td><td>0</td><td>16</td><td>0</td><td>173 (5.00)</td></tr><tr><td>2020-21</td><td>39</td><td>183</td><td>39</td><td>2</td><td>39</td><td>0</td><td>302 (8.10)</td></tr><tr><td>2021-22</td><td>11</td><td>265</td><td>85</td><td>49</td><td>24</td><td>0</td><td>434 (10.02)</td></tr><tr><td>2022-23</td><td>5</td><td>224</td><td>126</td><td>72</td><td>21</td><td>18</td><td>467 (11.80)</td></tr><tr><td>2023-24*</td><td>2</td><td>130</td><td>135</td><td>45</td><td>159</td><td>89</td><td>559</td></tr></table> <p>Supply years are Dec-Nov, Dec-Oct for 2022-23 and Nov-Oct for 2023-24; *As per offers received in cycle 1 (Nov 2023) of bids invited by OMCs; Figures in brackets are average ethanol blending with petrol in per cent. Source: Industry estimates.</p> <p>The increase in India's ethanol production happened largely after 2017-18, when mills started making it from B-heavy molasses and concentrated sugarcane juice/syrup (Table 1).</p>	Supply Year	C-Heavy Molasses	B-Heavy Molasses	Sugarcane Juice	Surplus Rice	Damaged Grains	Maize	TOTAL	2013-14	38	0	0	0	0	0	38 (1.60)	2014-15	67	0	0	0	0	0	67 (2.33)	2015-16	111	0	0	0	0	0	111 (3.51)	2016-17	67	0	0	0	0	0	67 (2.07)	2017-18	151	0	0	0	0	0	151 (4.22)	2018-19	146	33	1	0	10	0	189 (4.92)	2019-20	74	68	15	0	16	0	173 (5.00)	2020-21	39	183	39	2	39	0	302 (8.10)	2021-22	11	265	85	49	24	0	434 (10.02)	2022-23	5	224	126	72	21	18	467 (11.80)	2023-24*	2	130	135	45	159	89	559
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72.	<p>A</p> <p>Why in news: Experts raises concern that there is a need to conserve Assam catkin yew.</p> <p>It is also known as Amentotaxus assamica. It is a critically endangered (IUCN) and endemic species found only in two locations in Arunachal Pradesh: Changlagam in Anjaw district, and Deb village in Toru Hills, Papum Pare district. Statement 1 is correct. The species, a conifer and part of the Taxaceae genus, primarily grows in the subtropical biome at altitudes of 1,600 to 2,000 metres.</p> <p>The original habitat and ecology of this plant have undergone severe land</p>																																																																																																	

	<p>transformation, rendering it critically endangered due to its low reproduction rate. It is believed to have evolved during the age of the dinosaurs.</p> <p>Conservation status: IUCN: Critically endangered Wildlife Protection Act, 1972: Schedule 6. Statement 2 is incorrect.</p> <p>Threats: The species faces a severe risk of extinction due to unknowing and reckless exploitation in the area. Owing to its strength and fortification, it is highly threatened by accidental cutting for construction purposes, or use in households and other utilities. Amentotaxus has significant economic and ecological value, considered for medicinal treatment, besides the extraction of a poisonous chemical from yew. Why does it need conservation? This species is critical and is found nowhere else worldwide, except in two regions in Arunachal Pradesh. The species holds a unique identity in the context of Arunachal's flora, and has great potential for wildlife tourism in the state.</p>		<p>especially MSMEs and Start-ups to bring in the culture of Design & Development of Military Technology and support them with Grant in Aid.</p> <p>To focus on Research, Design & Development of Niche technologies which are being developed for the first time in the country.</p> <p>To create a bridge amongst the Armed Forces, research organizations, academia and qualifying/certifying agencies with private sector entities.</p> <p>To support the futuristic technologies having a Proof of Concept and converting them into prototype.</p> <p>Funding Support: The funding will be through provision of grants to the Industry. The project cost of up to INR 10 Cr will be considered for funding, subject to a maximum of 90% of the total project cost. Industry may work in collaboration with academia or research institutions. The work involvement of academia cannot exceed 40% of the total project cost. Project Duration: Maximum development period will be two years. Statement 3 is correct.</p>
73.	<p>A</p> <p>Recently, the union Raksha Rajya Mantri informed Lok Sabha that 16 defence technologies have been successfully developed/realised under the Technology Development Fund (TDF) scheme.</p> <p>It is a flagship programme of Ministry of Defence executed by Defence Research and Development Organisation (DRDO) under 'Make in India' initiative. Statement 1 is incorrect.</p> <p>The main objectives of the scheme are: To provide Grant in Aid to Indian industries, including MSMEs and Start-ups, as well as academic and scientific institutions for the development of Defence and dual use technologies that are currently not available with the Indian defence Industry. Statement 2 is correct. To engage with the private industries</p>	74.	<p>B</p> <p>Global Partnership on Artificial Intelligence (GPAI)</p> <p>Context: India is hosting the Annual Global Partnership on Artificial Intelligence (GPAI) Summit from December 12 - 14, 2023.</p> <p>About the Global Partnership on Artificial Intelligence: It is a multi-stakeholder initiative which aims to bridge the gap between theory and practice on AI by supporting cutting-edge research and applied activities on AI-related priorities. Statement 1 is correct. It was launched in June 2020. Membership in GPAI is open to all countries, including emerging and developing countries. Member countries: At present it has 28-member countries including the European</p>

	<p>Union. Currently out of BRICS nations only Brazil and India are its members. Russia, China and South Africa are not its members. Statement 2 is incorrect.</p> <p>India is one of the founding members of GPAI. Statement 3 is incorrect.</p> <p>Secretariat: Its secretariat is hosted at the Organisation for Economic Co-operation and Development (OECD), Paris.</p> <p>Structure: It has a Council and a Steering Committee.</p> <p>It has two Centres of Expertise: One in Montreal and another in Paris.</p> <p>These Centres of Expertise will facilitate GPAI's four working groups and their research and practical projects, across various sectors and disciplines.</p> <p>The working groups will initially focus on four themes:</p> <p>Responsible AI Data Governance the Future of Work Innovation and Commercialization</p>	<p>The Indian Patent Office majorly uses Section 3(e) in inventions relating to chemical, pharmaceutical, and bio technology compositions.</p> <p>So, when an inventor mixes two components, the resultant substance obtained must not possess the aggregation of properties of these two individual components. In case it results only in the aggregation of properties of the individual components, neither the substance obtained nor the method of producing such a substance will be an invention.</p>
75.	<p>C</p> <p>In almost all jurisdictions around the world, patentability requirements for the grant of a patent are relatively similar. The claimed invention must be novel, should possess an inventive step, and should also have industrial applicability.</p> <p>However, this three-fold test is preceded by an additional patentability requirement, which is statutorily recognized in India under Section 3 of The Patents Act, 1970.</p> <p>Authorities in India have unanimously reiterated many times that the invention must pass the patentability requirements under Section 3 before we could assess the invention for having novelty, inventive step, and industrial applicability.</p> <p>One such preliminary patentability requirement is provided under Section 3(e) of The Patents Act, 1970 which states that "a substance obtained by a mere admixture resulting only in the aggregation of the properties of the components thereof or a process for producing such substance" is not an invention.</p>	<p>76. A</p> <p>B-cell lymphoma/leukemia 11A is a protein that in humans is encoded by the BCL11A gene.</p> <p>BCL11A has been found to play a role in the suppression of foetal haemoglobin production. Therapeutic strategies aimed at increasing foetal haemoglobin production in diseases such as beta thalassemia and sickle cell anaemia by inhibiting BCL11A are currently being explored. Option (a) is correct.</p> <p>Recently, the UK Drug Regulator sanctioned a gene therapy called Casgevy heralded as a significant breakthrough for treating sickle cell disease and thalassaemia.</p> <p>How does the Casgevy Therapy Work?</p> <p>Both sickle cell disease and thalassaemia are caused by errors in the gene for haemoglobin (Hb), a protein in the red blood cells that carry oxygen to organs and tissues.</p> <p>The therapy uses the patient's own blood stem cells, which are precisely edited using CRISPR-Cas9. A gene called BCL11A, which is crucial for switching from foetal to adult haemoglobin, is targeted by the therapy.</p> <p>Foetal haemoglobin, which is naturally present in everyone at birth, does not carry the same abnormalities as adult haemoglobin.</p> <p>The therapy uses the body's own mechanisms to start producing more of this foetal haemoglobin, alleviating the symptoms of the two conditions.</p>

	<p>Casgevy involves a single treatment wherein blood stem cells are extracted via apheresis and then edited over approximately six months before being reintroduced into the patient.</p> <p>Apheresis is a medical procedure that involves removing specific components from blood and returning the rest to the body.</p>		<p>branding, onboarding on ecommerce platforms such as GeM, advertising, publicity and other marketing activities to improve linkage to value chain.</p> <p>Statement 3 is incorrect: The Scheme covers artisans and craftspeople engaged in 18 trades, viz. (i) Carpenter (Suthar/Badhai); (ii) Boat Maker; (iii) Armourer; (iv) Blacksmith (Lohar); (v) Hammer and Tool Kit Maker; (vi) Locksmith; (vii) Goldsmith (Sonar); (viii) Potter (Kumhaar); (ix) Sculptor (Moortikar, stone carver), Stone breaker; Cobbler (Charmkar)/ Shoesmith/Footwear artisan; (xi) Mason (Rajmistri); (xii) Basket/Mat/Broom Maker/Coir Weaver; (xiii) Doll & Toy Maker (Traditional); (xiv) Barber (Naai); (xv) Garland maker (Malakaar); (xvi) Washerman (Dhobi); (xvii) Tailor (Darzi); and (xviii) Fishing Net Maker.</p>
77.	<p>A</p> <p>Beit Lahia or Beit Lahiya is a city in the Gaza Strip, north of Jabalia, in the North Gaza Governorate of the State of Palestine. The political party Hamas is still administering the city, together with the entire Gaza Strip.</p>		
78.	<p>B</p> <p>According to the data from the Ministry of Skill Development and Entrepreneurship (MSDE) - The PM Vishwakarma Scheme, launched by the Centre on September 17, has received over 21 lakh applications in two and a half months.</p> <p>Statement 1 is correct: PM Vishwakarma Scheme is a Central Sector Scheme. The Vishwakarma Scheme provides formal training for the upgradation and modernisation of traditional skills amid a changing economic landscape.</p> <p>Statement 2 is correct: The Scheme envisages provisioning of the following benefits to the artisans and craftspeople:</p> <p>Recognition: Recognition of artisans and craftspeople through PM Vishwakarma certificate and ID card.</p> <p>Skill Upgradation: Basic Training of 5-7 days and Advanced Training of 15 days or more, with a stipend of Rs. 500 per day;</p> <p>Toolkit Incentive</p> <p>Credit Support: Collateral-free 'Enterprise Development Loans' of up to Rs. 3 lakhs in two tranches of Rs. 1 lakh and Rs. 2 lakhs with tenures of 18 months and 30 months, respectively,</p> <p>Incentive for Digital Transaction</p> <p>Marketing Support: Marketing support will be provided to the artisans and craftspeople in the form of quality certification,</p>	79.	<p>B</p> <p>Green Rising Initiative:</p> <p>Context: Recently, the United Nations Children's Fund (UNICEF)'s Generation Unlimited in collaboration with India's Ministry of Environment, Forest, and Climate Change unveiled the "Green Rising" initiative at COP28 in Dubai. Statement 1 is incorrect.</p> <p>About Green Rising Initiative:</p> <p>This initiative focuses on engaging youth for impactful environmental actions at the grassroots level, aligning with the global effort to address the severe impacts of climate change. Statement 2 is correct.</p> <p>The global "Green Rising" initiative and the "Green Rising India Alliance" marks a collaborative effort involving UNICEF, Generation Unlimited, and a diverse network of public, private, and youth partners.</p> <p>The main goal is to mobilize millions of young people worldwide, encouraging their active participation in green initiatives addressing and adapting to the severe impacts of climate change on their communities.</p> <p>Through the YuWaah campaign in India, the focus is on engaging youth to drive</p>

	<p>impactful environmental actions at the grassroots level. Statement 3 is correct.</p> <p>Key points about the UNICEF</p> <p>The United Nations Children's Fund was originally founded as the United Nations International Children's Emergency Fund (UNICEF).</p> <p>It was founded by the UN General Assembly on 11 December 1946, to provide emergency food and healthcare to children and mothers in countries that had been devastated by World War II.</p> <p>It is a leading source of information on the situation of children around the world.</p> <p>It relies entirely on contributions from governments and private donors.</p> <p>The Executive Board is made up of 36 Member States, elected to three-year terms by the Economic and Social Council, with the following regional allocation: Africa (8 seats), Asia (7), Eastern Europe (4), Latin America and Caribbean (5) and Western Europe and Others (12). Headquarters: New York City.</p>	<p>dividing day and night into 12-hour periods, hours into 60 minutes, and minutes into 60 seconds. They built the first known cities as well as creating the first known code of law.</p> <p>According to archaeological evidence, they built about a dozen city-states in the fourth millennium BC. They advanced the craft of writing, writing literature, hymns and prayers. The epic of Gilgamesh, considered the world's oldest surviving piece of literature, derives from five Sumerian poems. They also perfected several existing forms of technology, including the wheel, the plough, and mathematics. They were also notably one of the first civilizations to brew beer, which was seen by the ancient people as a key to a healthy heart and liver.</p>
80. C	<p>Girsu was a city of the Sumer civilization. It was discovered during the 19th century, with the first excavations being conducted in the 1880s by the French archaeologist, Ernest de Sarzec.</p> <p>It was significant in that it first revealed to the world the existence of the Sumerian civilization, as well as bringing to light some of the most vital monuments of Mesopotamian art and architecture.</p> <p>Facts about Sumer Civilization:</p> <p>It is one of the earliest known civilizations that flourished between c. 4100-1750 BCE in the historical region of southern Mesopotamia, in present-day Iraq. Sumer was never a cohesive political entity, however, but a region of city-states, each with its own king.</p> <p>The Sumerians were responsible for many technological advancements, including measurements of time as well as writing. They essentially "invented" time by</p>	<p>81. D</p> <p>Sea Buckthorn</p> <p>Sea Buckthorn (<i>Hippophae L</i>) is a wonder plant of Ladakh and named 'Leh Berry' produces small orange or yellow coloured berries that are sour in taste but rich in vitamins, especially Vitamin C. Statement 1 is correct. It is a deciduous shrub in the family Elaeagnaceae. Statement 2 is correct. Many Sea Buckthorn products have nutritional and medicinal value.</p> <p>It is naturally distributed over 11,500 hectares in the Ladakh region.</p> <p>The shrub can withstand extreme temperatures from minus 43 degrees Celsius to 40 degrees Celsius and is considered drought-resistant. These two characteristics make the shrub an ideal plant species to establish in cold deserts.</p> <p>Sea Buckthorn berries have a unique characteristic of remaining intact on the shrub throughout the winter months despite of the subzero temperature. Statement 3 is correct.</p> <p>Many bird species feed on the berries when other source of food is limited in the region.</p> <p>The leaves serve as protein-rich fodder for cold desert animals like sheep, goats, donkeys, cattle, and double-hump camels. Statement 4 is correct.</p>

	<p>The thorny and bushy growth of the shrub provides a protective shelter for flora and fauna thereby maintaining the fragile ecosystem of the cold arid region.</p> <p>Sea Buckthorn has been judiciously used by people living in the cold deserts.</p> <p>Due to the scarcity of resources, Sea Buckthorn has been used traditionally for a variety of purposes.</p> <p>Every part of the plant - fruit, leaf, twig, root, and thorns has been traditionally used as medicine, nutritional supplement, fuel and fence, and therefore, Sea Buckthorn is popularly known as 'Wonder Plant', 'Ladakh Gold', 'Golden Bush' or 'Gold Mine' of cold deserts.</p> <p>Recently, Ladakh's Sea Buckthorn fruit got the Geographical Indication (GI) tag.</p>	<p>branches, matters relating to interest rates, loan policies, investments and prudential exposure norms are regulated and supervised by the Reserve Bank under the provisions of the Banking Regulation Act, 1949 after an amendment in 1966. Statement 3 is correct.</p> <p>What are Urban Cooperative Banks (UCBs)?</p> <p>Co-operative Banks, which are distinct from commercial banks, were born out of the concept of co-operative credit societies where members from a community group together to extend loans to each other, at favourable terms.</p> <p>Co-operative Banks are broadly classified into Urban and Rural co-operative banks based on their region of operation.</p> <p>UCBs are regulated and supervised by State Registrars of Co-operative Societies (RCS) in case of single-state co-operative banks and Central Registrar of Cooperative Societies (CRCS) in case of multi-state co-operative banks and by the RBI.</p> <p>But in 2020, all UCBs and multi-state cooperatives were brought under the supervision of RBI. Statement 4 is correct.</p> <p>In 2021 RBI appointed a committee that suggested a 4-tier structure for the UCBs.</p> <p>Tier 1 with all unit UCBs and salary earner's UCBs (irrespective of deposit size) and all other UCBs having deposits up to Rs 100 crore.</p> <p>Tier 2 with UCBs of deposits between Rs 100 crore and Rs 1,000 crore,</p> <p>Tier 3 with UCBs of deposits between Rs 1,000 crore and Rs 10,000 crore, and Tier 4 with UCBs of deposits more than Rs 10,000 crore.</p>
82.	<p>D</p> <p>What is Cooperatives Banks in India?</p> <p>It is an institution established on a cooperative basis to deal with the ordinary banking business. Cooperative banks are founded by collecting funds through shares, accepting deposits, and granting loans. They are Cooperative credit societies where members from a community group together to extend loans to each other, at favourable terms.</p> <p>They are registered under the Cooperative Societies Act of the State concerned or the Multi-State Cooperative Societies Act, 2002. Statement 1 is correct. The Co-operative banks are governed by the, Banking Regulations Act, 1949. Banking Laws (Co-operative Societies) Act, 1955. Statement 2 is correct.</p> <p>They are broadly divided into Urban and Rural cooperative banks.</p> <p>Cooperative banks lend as well as accept deposits. They are established with the aim of funding agriculture and allied activities and financing village and cottage industries. National Bank for Agriculture and Rural Development (NABARD) is the apex body of cooperative banks in India.</p> <p>The banking related functions such as issue of license to start new banks/</p>	<p>83. C</p> <p>Red Sprite: An Astronaut has recently captured the images of the rare atmospheric phenomenon 'Red sprite'.</p> <p>Red sprites, also known as "red fairies" are a type of transient luminous event (TLE), primarily appearing as red flashes of light occurring above thunderstorms.</p>

	<p>As rain and lightning descend from thunderstorms, electrical discharges can be unleashed into upper atmosphere.</p> <p>It results in lightning sprites or Red Sprite which resembles the long, jellyfish-like tendrils.</p> <p>The red sprites form around 40 to 80 km above ground.</p> <p>Blue Jets and Elves are the other upper atmospheric phenomenon linked to thunderstorm activity.</p>	<p>85. B</p> <p><i>Potteromyces asteroxylicola</i></p> <p>Context: Researchers discover a 407-million-year-old fungus fossil, <i>Potteromyces asteroxylicola</i> in the Rhynie Chert, marking the oldest evidence of fungi causing diseases.</p> <p>About <i>Potteromyces asteroxylicola</i>:</p> <p>It was found infecting the ancient plant <i>Asteroxylon mackiei</i>, showcasing a predator-prey interaction that occurred while the plant was alive.</p> <p>The unique reproductive structures of <i>Potteromyces</i>, known as conidiophores, stood out with their unusual shape and formation, leading to its designation as a new species.</p> <p>Its reproductive structures, known as conidiophores, had an unusual shape and formation.</p> <p>Rhynie Chert site in Scotland is known for its well-preserved Early Devonian communities of plants and animals, including fungi and bacteria.</p> <p>What is Devonian Period?</p> <p>It is spanning between about 2 million and 358.9 million years ago.</p> <p>It is sometimes called the "Age of Fishes" because of the diverse, abundant and in some cases, bizarre types of these creatures that swam Devonian seas.</p> <p>Forests and the coiled shell-bearing marine organisms known as ammonites first appeared early in the Devonian.</p> <p>Late in the period the first four-legged amphibians appeared, indicating the colonization of land by vertebrates.</p> <p>During the Devonian, there were three major continental masses: North America and Europe sat together near the equator, with much of their current area covered by shallow seas. To the north lay a portion of modern Siberia. A composite continent of South America, Africa, Antarctica, India, and Australia dominated the southern hemisphere.</p>
84. B	<p>The Universal Declaration of Human Rights (UDHR)</p> <p>UDHR is a milestone document that sets out, for the first time, fundamental human rights to be universally protected.</p> <p>It was adopted by the UN General Assembly in Paris in 1948. Statement 1 is correct.</p> <p>UDHR consists of the declaration consists of a preamble and 30 articles setting out fundamental rights and freedom.</p> <p>The declaration isn't a treaty and isn't legally binding in itself, but the principles it sets out have been incorporated into many countries' laws.</p> <p>Statement 2 is incorrect.</p> <p>Human Rights Day is observed annually on December 10 to commemorate the adoption and proclamation of the UDHR by the United Nations General Assembly on December 10, 1948.</p> <p>2023 marks the 75th anniversary of the UDHR.</p> <p>The theme chosen for the 2023 celebrations is "Freedom, Equality, and Justice for All".</p> <p>India is a signatory to the Universal Declaration of Human Rights. Statement 3 is correct.</p> <p>To preserve and protect human rights in India, the National Human Rights Commission (NHRC) was established in 1993.</p> <p>The NHRC is a human rights institution, which is a recommendatory body as per the Protection of Human Rights Act.</p>	

86.	<p>A</p> <p>Context:</p> <p>OpenAI's Lilian Weng faced criticism for likening ChatGPT to therapy. Despite ethical concerns, users turn to ChatGPT for mental health support, highlighting challenges and biases in AI-generated health information.</p> <p>In September, OpenAI officer Lilian Weng faced criticism on social media for likening her conversation with ChatGPT to therapy despite lacking experience in therapy.</p> <p>Weng, working on AI safety at OpenAI, shared her emotional interaction with ChatGPT following the introduction of voice and image capabilities to the chatbot.</p> <p>The incident sparked discussions about the ethical implications of portraying ChatGPT as a tool for therapy, leading to accusations of the "ELIZA effect."</p> <p>The ELIZA Effect</p> <p>The ELIZA effect refers to the tendency of people to attribute human-like emotions or functions to computer programs based on their responses to user input. Option (a) is correct.</p> <p>Named after a 1960s computer program, ELIZA, created by MIT professor Joseph Weizenbaum, this effect suggests users may perceive meaningful interactions with ChatGPT, believing it to simulate human conversation.</p> <p>Users Seeking Mental Health Support from ChatGPT</p> <p>Despite criticisms, users have turned to ChatGPT for mental health support, considering it a convenient and accessible option.</p> <p>These users acknowledge the limitations of ChatGPT but find it helpful for obtaining quick responses to anxiety-inducing situations when professional therapy may not be readily available.</p> <p>Web-based Health Information Seeking</p> <p>Individuals often seek health information privately online to maintain anonymity and avoid stigma.</p>	<p>While AI chatbots like ChatGPT offer a sense of privacy, concerns about their ability to bridge doctor-patient divides and generate inclusive results have been raised.</p> <p>Researchers highlight potential biases in AI-generated health information, favouring privileged castes and economic classes and producing false results about physiological differences among racial groups.</p> <p>Challenges and Ethical Considerations</p> <p>Critics argue that AI-generated health understandings may perpetuate Eurocentric perspectives and fail to recognize cultural specificity.</p> <p>Users acknowledge ChatGPT's limitations, emphasising the importance of human therapists in offering deeper insights, recognizing triggers, and establishing free-flowing, insightful conversations.</p> <p>ChatGPT as a Stop-gap Arrangement</p> <p>Users see ChatGPT as a stop-gap arrangement, providing immediate but limited assistance in specific situations.</p> <p>While ChatGPT offers convenience, the complex and culturally specific nature of mental health requires a nuanced and human-centred approach, urging caution in relying solely on AI for therapeutic support.</p>
87.	<p>A</p> <p>China based space technology startup Land Space has recently launched a methane-powered private rocket.</p> <p>Zhuque 2 is a launch vehicle powered by a mixture of methane and liquid oxygen. Option (a) is correct.</p> <p>Land Space has already launched the methane powered Zhuque-2 in July, 2023 without satellites.</p> <p>With this, LandSpace becomes the first company in the world to launch a methane-liquid oxygen rocket ahead of U.S. rivals including Musk's SpaceX and Jeff Bezos' Blue Origin.</p> <p>Capacity - Currently, the rocket can carry a payload of up to 1.5 metric tons into a 500-kilometre-orbit.</p>	

	<p>Advantages - The use of methane in commercial launches could help slash costs and make it easier to reuse rockets.</p> <p>Zhuque-3 - It would use stainless steel propellant tanks and clusters of methane-liquid oxygen propellant engines.</p>		<p>The Indian Institute of Technology (IIT) - Madras has developed the technology for the removal of Arsenic and Metal ions from water.</p> <p>The technology uses Nano-scale iron oxy-hydroxide, which selectively removes arsenic when water is passed through it. Statement I is incorrect</p> <p>Statement II is correct: This water purifier has been developed for both domestic as well as community levels.</p> <p>Also, the technology has been recommended by the erstwhile 'Standing Committee' of the Department of Drinking Water and Sanitation for the examination of the best technologies concerning water and sanitation.</p>
88.	<p>A</p> <p>Dairy Methane Alliance is a global initiative to accelerate food industry action to drive down methane emissions from the dairy sector. It is not an intergovernmental initiative; it is led by 6 dairy companies. Statement 1 is incorrect.</p> <p>By joining this ground-breaking initiative, signatory companies commit to annually account for and publicly disclose methane emissions within their dairy supply chains by end of 2024.</p> <p>The companies joining the alliance is also obliged to publish & implement a comprehensive methane action plan by the end of 2024.</p> <p>The alliance was launched at the COP 28, UAE. Statement 2 is correct.</p> <p>The world's largest dairy companies will soon begin disclosing their methane emissions as part of a new global alliance. The initiative is led by the 6 dairy companies.</p> <p>The 6 members of the Dairy Methane Action Alliance includes:</p> <p>Danone (DANO.PA)</p> <p>Bel Group</p> <p>General Mills (GIS.N)</p> <p>Lactalis USA</p> <p>Kraft Heinz (KHC.O)</p> <p>Nestle (NESN.S).</p>	90.	<p>B</p> <p>NITI Aayog releases the 1st Delta Ranking of the Aspirational Blocks Programme (ABP).</p> <p>Statement 1 is correct: The Aspirational Blocks Programme (ABP) was launched on January 7, 2023. ABP focuses on improving governance to enhance the quality of life of citizens in the most difficult and relatively underdeveloped blocks of India.</p> <p>Statement 2 is incorrect: 500 blocks from 329 districts across 27 states and 4 Union Territories of India are part of the programme.</p> <p>The Programme strategy is based on the convergence of existing schemes, defining outcomes, and monitoring them constantly.</p> <p>Statement 3 is correct: The ranking of the blocks is calculated based on the performance of blocks and progress achieved in the Key Performance Indicators.</p> <p>Ranking the blocks based on KPIs is a core strategy of the Programme based on the spirit of competitive and cooperative federalism. This is the first time that the ranking of blocks has been calculated as part of the Aspirational Blocks Programme.</p> <p>Tiriyani Block of Komaram Bheem Asifabad district, Telangana secured the top position in the first delta rankings of the</p>
89.	<p>D</p> <p>Arsenic & Metal Removal by Indian Technology (AMRIT) is an affordable solution for providing clean drinking water in arsenic-affected areas.</p> <p>It is a gravity-fed water purification unit in which arsenic and iron-containing water is passed through a composite filter unit to obtain water, conforming to international standards.</p>		

	Aspirational Blocks Programme (ABP) announced by NITI Aayog. The second position was bagged by the Kaushambi block of Kaushambi District, Uttar Pradesh.		
91.	<p>C</p> <p>Archaeologists have recently used radiocarbon dating to analyse the oldest true wooden frame saddle in East Asia, revealing how the rise of Mongolian steppe cultures was likely aided by advances in equestrian technology.</p> <p>About Radiocarbon Dating:</p> <p>Radiocarbon dating, or carbon-14 dating, is a scientific method that can accurately determine the age of organic materials as old as approximately 60,000 years.</p> <p>First developed in the late 1940s at the University of Chicago by Willard Libby, the technique is based on the decay of the carbon-14 isotope (Carbon-14 is a radioactive isotope of carbon).</p> <p>It has been used for historical studies and atmospheric science.</p> <p>It can be used on any object that used to be alive. That includes pieces of animals, people, and plants, but also paper that was made from reeds, leather made from animal hides, logs that were used to build houses, and so forth. Option (c) is correct.</p> <p>How does it work?</p> <p>Carbon 14 is continually being formed in the upper atmosphere by the effect of cosmic ray neutrons on nitrogen 14 atoms. It is rapidly oxidized in air to form carbon dioxide and enters the global carbon cycle.</p> <p>Plants and animals assimilate carbon 14 from carbon dioxide throughout their lifetimes into their tissues. When they die, the carbon-14 starts to change into other atoms over time. Scientists can estimate how long the organism has been dead by counting the remaining carbon-14 atoms.</p> <p>Carbon-14 has a half-life of about 5,730 years. That means half the atoms in a sample will change into other atoms, a process known as "decay," in that amount of time.</p>	92.	<p>C</p> <p>The Securities and Exchange Board of India (Sebi) recently proposed to permit companies to issue non-convertible debentures (NCDs) and non-convertible redeemable preference shares (NCRPS) with the face value of Rs. 10,000 as against the current system of Rs one lakh face value.</p> <p>What are Preference Shares?</p> <p>Preference shares, more commonly referred to as preferred stock, are shares of a company's stock with dividends that are paid out to shareholders before common stock dividends are issued.</p> <p>If the company enters bankruptcy, preferred stockholders are entitled to be paid from company assets before common stockholders. Statement 1 is correct.</p> <p>Non-Convertible v/s Convertible Preference Shares:</p> <p>Preference shares that can be easily converted into equity shares are known as convertible preference shares.</p> <p>Non-Convertible preference shares are those shares that cannot be converted into equity shares.</p> <p>Redeemable v/s Non-Redeemable Preference Shares:</p> <p>Redeemable preference shares are those shares that can be repurchased or redeemed by the issuing company at a fixed rate and date. These types of shares help the company by providing a cushion during times of inflation. Statement 2 is correct.</p> <p>Non-redeemable preference shares are those shares that cannot be redeemed or repurchased by the issuing company at a fixed date. Non-redeemable preference shares help companies by acting as a lifesaver during times of inflation.</p> <p>Other Types:</p> <p>Cumulative preference shares: Some preference shares also receive arrears of dividends, which are called cumulative preference shares.</p> <p>Participating preference shares: These help shareholders demand a part in the</p>

	<p>company's surplus profit at the time of the company's liquidation after the dividends have been paid to other shareholders. However, these shareholders receive fixed dividends and get part of the surplus profit of the company along with equity shareholders.</p> <p>Non-Participating preference shares: These do not benefit the shareholders the additional option of earning dividends from the surplus profits earned by the company, but they receive fixed dividends offered by the company.</p> <p>Adjustable Preference Shares: In the case of adjustable preference shares, the dividend rate is not fixed and is influenced by current market rates.</p>	<p>Parliamentary approval is necessary for the imposition of President's Rule in any state. The proclamation of President's Rule should be approved in both Houses of Parliament within two months of its issue. The approval is by a simple majority. Statement 2 is correct.</p> <p>The President's Rule is initially for a period of six months. Later, it can be extended for a period of three years with parliamentary approval, every six months.</p> <p>The 44th Amendment to the Constitution (1978) brought in some constraints on the imposition of the President's Rule beyond a period of one year. It says that President's Rule cannot be extended beyond one year unless: There is a national emergency in India.</p> <p>The Election Commission of India certifies that it is necessary to continue the President's Rule in the state because of difficulties in conducting assembly elections in the state.</p> <p>What happens after the President's Rule is imposed?</p> <p>The governor carries on with the administration of the state on behalf of the President. He or she takes the help of the state's Chief Secretary and other advisors/administrators whom he or she can appoint.</p> <p>The President has the power to declare that the state legislature's powers would be exercised by the Parliament.</p> <p>The state legislative assembly would be either suspended or dissolved by the President.</p> <p>When the Parliament is not in session, the President can promulgate ordinances with respect to the state's administration.</p> <p>Revocation of the President's Rule:</p> <p>President's Rule can be revoked any time after such a proclamation has been made by a subsequent proclamation by the President.</p> <p>A proclamation of revocation does not require approval by Parliament. Statement 3 is correct.</p>
93. B	<p>The Supreme Court recently held that the declaration of State emergency under Article 356 and the subsequent actions of the President should have a "reasonable nexus".</p> <p>About Article 356:</p> <p>Article 356 of the Constitution of India is based on Section 93 of the Government of India Act, 1935.</p> <p>According to Article 356, President's Rule can be imposed on any state of India on the grounds of the failure of the constitutional machinery.</p> <p>This is of two types:</p> <p>If the President receives a report from the state's Governor or is otherwise is convinced or satisfied that the state's situation is such that the state government cannot carry on the governance according to the provisions of the Constitution. Statement 1 is incorrect.</p> <p>Article 365: As per this Article, President's Rule can be imposed if any state fails to comply with all directions given by the Union on matters it is empowered to.</p> <p>In simple words, President's Rule is when the state government is suspended and the central government directly administers the state through the office of the governor (centrally appointed). It is also called a State Emergency or Constitutional Emergency.</p>	

94.	<p>C</p> <p>Indian Forest & Wood Certification Scheme</p> <p>Indian Forest & Wood Certification Scheme was recently launched by the Ministry of Environment, Forests and Climate Change that aims to promote sustainable forest management and agroforestry.</p> <p>Indian Forest & Wood Certification scheme offers voluntary third-party certification designed to promote sustainable forest management and agroforestry in the country. Statement 1 is correct.</p> <p>The scheme includes forest management certification, tree outside forest management certification and chain of custody certification.</p> <p>It can provide market incentives to various entities that adhere to responsible forest management and agroforestry practices in their operations. Statement 2 is correct.</p> <p>This includes state forest departments, individual farmers, or Farmer Producer Organizations engaged in agroforestry and farm forestry, as well as other wood-based industries in the value chain.</p> <p>It is an initiative of the Ministry of Environment, Forests and Climate Change. It will be overseen by the Indian Forest and Wood Certification Council, which will act as a multi-stakeholder advisory body.</p> <p>The Council is represented by members from eminent institutions that includes:</p> <ul style="list-style-type: none">" Indian Council of Forestry Research and Education, o Forest Survey of India and Quality Council of India," Indian Institute of Forest Management, o State Forest Departments and Forest Development Corporations and" Representatives from wood-based industries. <p>Indian Institute of Forest Management, Bhopal will act as the scheme operating agency and will be responsible for overall management of the Indian Forest and Wood Certification Scheme. Statement 3 is correct.</p> <p>The National Accreditation Board for Certification Bodies under the Quality Council of India will accredit the certification bodies.</p>	<p>The certification bodies will carry out independent audits and assess adherence of various entities on the standards prescribed under the scheme.</p> <p>The Forest Management certification is based on the Indian Forest Management Standard.</p> <p>The Indian Forest Management Standard consists of 8 criteria, 69 indicators and 254 verifiers, which is an integral part of the National Working Plan Code 2023.</p>
95.	<p>B</p> <p>Global Goal on Adaptation (GGA)</p> <p>The text on the Global Goal on Adaptation (GGA) was recently introduced by the COP28 Presidency.</p> <p>Global Goal on Adaptation (GGA) is meant to serve as a unifying framework that can drive political action and finance for adaptation on the same scale as mitigation.</p> <p>It was proposed by the African Group of Negotiators (AGN) in 2013 and established in 2015 under Paris agreement. Statement 2 is incorrect.</p> <p>An effective GGA framework should define a clear set of targets and indicators to guide national efforts on adaptation and resilience, with a focus on strengthening and tracking adaptation action and support. Statement 1 is correct.</p> <p>At COP28, negotiators will work to finalize and implement the GGA, a task which was originally delegated to the Adaptation Committee (AC) and the Least Developed Countries Expert Group (LEG) in 2015.</p> <p>The GlaSS programme is expected to conclude at COP28 with an annual report. Statement 3 is correct.</p> <p>The new paragraphs in the text of GGA in COP 28 includes:</p> <p>A commitment to close the adaptation gap. Removal of common but differentiated responsibilities and respective capabilities (CBDR-RC).</p>	
96.	<p>A</p> <p>Alliance of Champions for Food Systems Transformation:</p> <p>The Alliance of Champions for Food</p>	

	<p>Systems Transformation was recently launched at the COP 28 to transform food systems to deliver better outcomes for people, nature and the climate.</p> <p>Alliance of Champions for Food Systems Transformation is a coalition of vanguard countries united by a shared ambition to transform food systems to deliver better outcomes for people, nature and the climate. Statement 1 is correct.</p> <p>The 5 alliance member countries include Brazil, Cambodia, Norway, Sierra Leone and Rwanda. Statement 2 is incorrect. India is not part of Alliance of Champions for Food Systems Transformation. Statement 3 is incorrect.</p> <p>Brazil, Norway and Sierra Leone will jointly Co-Chair the Alliance.</p> <p>The alliance members must agree to update their NDCs and national climate adaptation and biodiversity strategies to integrate these food system efforts by 2025.</p> <p>The alliance countries should report annually on progress towards their goals.</p> <p>It focuses on delivering universal access to affordable, nutritious and sustainable diets.</p> <p>It is independent from formal multilateral processes, but will work in support of the COP28 Presidency objectives around food systems transformation.</p> <p>The Alliance members are committed to driving systemic change, taking a 'whole of government' approach and inspiring others to go further, faster to deliver better outcomes for people, nature and climate.</p>	<p>EFTA is an intergovernmental organization that was established in 1960 as an alternative trade bloc for those European states that were unable or unwilling to join the European Union (EU).</p> <p>EFTA comprises Iceland, Liechtenstein, Norway, and Switzerland, which are not part of the EU but have access to its single market through various agreements.</p> <p>EFTA is India's 9th largest trading partner, accounting for about 2.5% of India's total merchandise trade in 2020-21.</p> <p>The main items of India's exports to EFTA are textiles, chemicals, gems, and jewellery, machinery, and pharmaceuticals.</p> <p>The main items of India's imports from EFTA are machinery, chemicals, precious metals, and medical instruments.</p> <p>What is TEPA?</p> <p>Objective:</p> <p>The TEPA aims to create opportunities for trade and investment between India and EFTA by eliminating/reducing tariffs and non-tariff barriers on a wide range of products. Option (a) is correct.</p> <p>It aims to ensure fair and transparent market access conditions for service providers and investors and will enhance cooperation on intellectual property rights protection and enforcement.</p> <p>TEPA aims to facilitate trade procedures and customs cooperation along with effective mechanisms for dispute resolution.</p> <p>Coverage:</p> <p>The TEPA is a comprehensive agreement that covers trade in goods, trade in services, investment, intellectual property rights, competition, government procurement, trade facilitation, trade remedies, dispute settlement, and other areas of mutual interest.</p>
97.	<p>A</p> <p>India and the four European countries that form the European Free Trade Association (EFTA) have expressed their willingness to resume their negotiations for a Trade and Economic Partnership Agreement (TEPA) that has been stalled since 2018.</p> <p>The TEPA aims to boost bilateral trade and economic cooperation between the two regions by reducing tariffs and non-tariff barriers, enhancing market access, and promoting investment flows.</p> <p>What is EFTA?</p>	<p>98. D</p> <p>INDIAN CHEVROTAIN</p> <p>India's smallest deer, also known as the Mouse deer is endemic to the Indian subcontinent. This shy and solitary ruminant lives a quiet life in the dense</p>

<p>forest. This unique deer is spread across the peninsular India, and their habitat ranges from deciduous, semi-evergreen, to evergreen forest.</p> <p>Chevrotain are often seen climbing the tree trunk, to make a hollow den to avoid the predators.</p> <p>Best Seen: Best places to look for these unique species are Kanha National Parks, Nagarhole National Park and Western Ghats. Pair 1 is correct.</p> <p>HIMALAYAN MUSK DEER</p> <p>This enigmatic taxon is a small dog-like ungulate without antlers, weighing up to 12 to 18 kilograms. A mountain ruminant with a sandy brown coat and paler chest, is found all across the Western Himalayas through Himachal Pradesh up to Sikkim.</p> <p>Commonly called White-bellied Musk Deer this species has large canines protruding from the mouth, which when broken grows back easily. They communicate mostly through olfaction (a process of smelling). Males have a scent sac that secretes a substance called musk, which they use to mark their territory and to attract the females. The musk is highly valued in cosmetic industries and has pharmaceutical properties, which makes them vulnerable to poaching.</p> <p>Best Seen: Few places where you can get a chance to see them are Govind Pashu Vihar National Park and Sanctuary and Great Himalayan National Park. Pair 2 is correct.</p> <p>SAMBAR DEER</p> <p>With the grandest of antlers, Sambar deer is India's largest forest ruminant, with a dark brown coat, weighing up to 180-270 kilograms. Males have huge three-tined antlers that can grow upto 1 metre long. They are found throughout India, except high Himalayas, desert, kutch and the coast.</p> <p>This mighty creature is highly territorial and are often seen fighting for their land.</p> <p>Both male and female have a sore spot on the neck which is a gland that is associated with communication during the rut/</p>	<p>mating. Males live a solitary life and are occasionally spotted associating with each other, mostly in the rutting season.</p> <p>Best seen: Since they are shy, they often run when they are near human dominated areas, but few places like Satpura National Park, Kanha National Park, Kaziranga National Park gives a good chance to spot this big species. Pair 3 is correct.</p> <p>KASHMIR RED DEER</p> <p>One of the iconic species, Hangul is the state animal of Jammu and Kashmir and is now classified as a critically endangered species by IUCN.</p> <p>These grimy looking deer have fine-tined antlers and are known to roar during the rutting season. Hangul are territorial and like to move around and guard their territory. As the population of the hinds are more as compared to stags, the rutting takes place rarely.</p> <p>Best Seen: Their habitat differs from moist, broadleaved and coniferous forest and is restricted to Dachigam National Park, Waraghat-Narang and Chandaji Nullah in Jammu -Kashmir. Pair 4 is correct.</p> <tr> <td data-bbox="794 1205 874 1238"> <p>99.</p> </td><td data-bbox="874 1205 1461 1928"> <p>B</p> <p>The Global Expert Review on Debt, Nature and Climate</p> <p>The Global Expert Review on Debt, Nature and Climate is a new Initiative to tackle debt & climate change that was recently launched at COP 28.</p> <p>The Global Expert Review on Debt, Nature and Climate is an initiative of Kenya, Colombia and France to tackle debt & climate change.</p> <p>It is an expert group established at the 2023 United Nations Climate Change Conference (COP28).</p> <p>The aim of the effort is to make structural economic transformation for low carbon economic growth.</p> <p>It aids to comprehensively assess how sovereign debt impacts the ability of low-and middle-income countries to address</p> </td></tr>	<p>99.</p>	<p>B</p> <p>The Global Expert Review on Debt, Nature and Climate</p> <p>The Global Expert Review on Debt, Nature and Climate is a new Initiative to tackle debt & climate change that was recently launched at COP 28.</p> <p>The Global Expert Review on Debt, Nature and Climate is an initiative of Kenya, Colombia and France to tackle debt & climate change.</p> <p>It is an expert group established at the 2023 United Nations Climate Change Conference (COP28).</p> <p>The aim of the effort is to make structural economic transformation for low carbon economic growth.</p> <p>It aids to comprehensively assess how sovereign debt impacts the ability of low-and middle-income countries to address</p>
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	<p>climate change, conserve nature and decarbonize their economies.</p> <p>The review will assess how sovereign debt affects the ability of developing countries to:</p> <p>Conserve nature</p> <p>Adapt to climate change</p> <p>Decarbonize their economies</p> <p>Become more sustainable</p>		<p>angle in between. Earth scientists use the angle of the fault with respect to the surface (known as the dip) and the direction of slip along the fault to classify faults.</p> <p>There are a number of different types of faults, but most can be divided into three categories: strike-slip faults, normal faults, and thrust faults.</p> <p>Strike-slip fault:</p> <p>It occurs in an area where two plates are sliding past horizontally with little to no vertical movement. Statement 1 is incorrect.</p> <p>Strike-slip faults are found in California, the San Andreas Fault being the most famous, which has caused many powerful earthquakes.</p> <p>Normal fault:</p> <p>Normal faults cracks where one mass of rock slides downward and pulls away from another mass of rock. Statement 2 is incorrect.</p> <p>Normal faults create space. Two blocks of crust pull apart, stretching the crust into a valley.</p> <p>The Basin and Range Province in North America and the East African Rift Zone are two well-known regions where normal faults are spreading apart Earth's crust.</p> <p>Reverse faults:</p> <p>Reverse faults also called thrust faults, slide one block of crust on top of another. This involves upward movement as the two plates collide and buckle upwards. Statement 3 is correct.</p> <p>These faults are commonly found in collisions zones, where tectonic plates push up mountain ranges such as the Himalayas and the Rocky Mountains.</p>
100	<p>B</p> <p>A team of geologists, mineralogists, and Earth and ocean scientists affiliated with institutions in Canada, the U.S., and France recently discovered a 72-kilometer fault line on Canada's Vancouver Island.</p> <p>About Fault Line:</p> <p>It is a line determined by the intersection of a geological fault and the earth's surface.</p> <p>A fault is a fracture or zone of fractures between two blocks of rock.</p> <p>This is caused by the stresses created as sections of a plate (or two plates) are moving in different directions.</p> <p>All faults are related to the movement of Earth's tectonic plates. The biggest faults mark the boundary between two plates.</p> <p>Faults allow the blocks to move relative to each other. This movement may occur rapidly, in the form of an earthquake, or it may occur slowly, in the form of creep.</p> <p>Faults may range in length from a few millimetres to thousands of kilometres, such as the San Andreas Fault in California and the Anatolian Fault in Turkey, both of which are visible from space.</p> <p>Most faults produce repeated displacements over geologic time. The fault surface can be horizontal, vertical or some arbitrary</p>		

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Students who make it a habit to reflect upon their performance after giving a test show improvement in their performance curve.

Please use the following questionnaire to reflect on your performance and preparation.

Number of Questions Attempted	
Correct	
Incorrect	
Silly Mistakes	
Unkown Questions	

Which concepts need clarity ?

Which questions and concepts need revision ?

Strong and Weak areas :