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Prelims Marathon

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HISTORY
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Miscellaneous Applications-IV

1. Consider the following statements regarding the Cleavable Light-Erased Antibody Reporter (CLEAR) platform:

1. It is a spatial protein imaging platform developed indigenously by the National Physical Laboratory (NPL) to map magnetic fields inside live mammalian cells.
2. The mechanism utilizes a high-intensity 365 nm LED light pulse to chemically cleave light-sensitive bonds and erase fluorescent signals without altering the biological sample.
3. The platform allows cyclic rewriting, meaning multiple sets of different proteins can be repeatedly labeled, imaged, and erased within the same optical window.
4. Because it requires a complex array of multi-laser imaging installations, it cannot function using a single fluorophore or a single spectral channel.

Which of the statements given above are correct?

- (a) 1 and 3 only
- (b) 2 and 3 only
- (c) 1, 2 and 4
- (d) 2 and 4 only

Correct Answer: (b)

Explanation:

- **Statement 1 is incorrect:** The CLEAR platform was developed by researchers at the Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), an autonomous institute under the Department of Science and Technology (DST). Its purpose is spatial protein imaging and mapping, not measuring magnetic fields.
- **Statement 2 is correct:** CLEAR utilizes antibody probes linked to fluorescent tags via a light-sensitive chemical bond. A gentle pulse of 365 nm ultraviolet LED light photolytically cleaves this bond, erasing the signal safely.
- **Statement 3 is correct:** Its chalkboard-like property allows researchers to clear the previous signal and introduce a fresh set of probes to map a large number of proteins within the same sample sequentially (high-plex multiplexing).
- **Statement 4 is incorrect:** A key design advantage of the CLEAR platform is that it simplifies imaging and reduces dependence on complex multi-laser setups by repeatedly utilizing a single fluorescent channel and single fluorophore.

2. Consider the following statements regarding Extracellular RNA (exRNA):

1. It refers to a uniform population consisting exclusively of small messenger RNAs (mRNAs) that are incapable of traveling inside body fluids like blood or saliva.
2. To survive biological degradation by extracellular enzymes, exRNAs travel inside protective molecular containers or associate with carriers like lipo-proteins and exosomes.
3. It functions as an intercellular communication network where a cell releases RNA to deliver functional instructions to another cell located elsewhere in the body.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (b)

Explanation:

- **Statement 1 is incorrect:** Extracellular RNA (exRNA) comprises a highly heterogeneous population of molecules. It is not uniform, nor is it limited strictly to mRNAs; it includes small non-coding RNAs (like microRNA or miRNA), long non-coding RNAs, and coding RNAs. Furthermore, they are actively found in various bodily fluids, including blood, saliva, urine, and cerebrospinal fluid.
- **Statement 2 is correct:** Because the extracellular environment contains active enzymes that would normally break down free genetic material, exRNA must travel in its own molecular containers or associate with specific carriers. These protective transport systems range from lipo- and ribo-proteins to specialized extracellular vesicles such as exosomes.
- **Statement 3 is correct:** exRNA operates as part of a highly sophisticated, long-distance cell-to-cell communication system. By transferring these RNA instructions across distances, cells can signal other parts of the body to change their behavior or activate specific genes. This process is crucial for coordinating vital physiological responses in development, tissue repair, and the immune system, and it is widely studied as a non-invasive biomarker for cancers and other diseases.

3. Consider the following statements regarding the Solar wind Magnetosphere Ionosphere Link Explorer (SMILE) Mission:

1. It is a joint deep-space exploratory mission implemented by the European Space Agency (ESA) and the Chinese National Space Science Centre (NSSC).
2. The primary scientific aim of the mission is to capture the first X-ray images of Earth's magnetic shield interacting with solar wind streams.
3. SMILE will be positioned in a low-inclination equatorial orbit directly hovering above Earth's geographic equator at an altitude of 500 km.
4. The mission relies entirely on active remote sensing instruments, completely excluding any onboard in-situ particle analyzers or magnetometers.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 4 only
- (c) 1, 3 and 4
- (d) 2 and 3 only

Correct Answer: (a)

Explanation:

- **Statements 1 and 2 are correct:** The SMILE mission is a collaborative effort between the ESA Science Programme and the Chinese Academy of Sciences (CAS). It aims to map the boundary where the solar wind hits Earth's magnetosphere, enhancing space weather forecasting to protect grid infrastructures, satellites, and GPS networks.
- **Statement 3 is incorrect:** SMILE will be placed in a highly eccentric, high-inclination orbit positioned roughly 1.21 lakh km above Earth's north pole, allowing it to continuously observe Earth's northern magnetic recesses.
- **Statement 4 is incorrect:** The satellite carries four distinct payloads combining both remote sensing and in-situ instruments: the Soft X-ray Imager (SXI), an Ultraviolet aurora Imager (UVI), a Light Ion Analyser (LIA) for on-site charged particle tracking, and a Magnetometer to record magnetic field flux changes.

4. Consider the following statements regarding Geocells:

1. They are three-dimensional cellular confinement systems shaped like honeycombs that are expanded on-site and filled with aggregate, sand, or soil to enhance load-bearing capacity.

2. Geocell matrices are synthesized exclusively from highly biodegradable organic plant fibers, making them structurally unfeasible for permanent heavy infrastructure installations like airport runways.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** Geocells are flexible, interconnected geosynthetic structures used to stabilize slopes, retain earth, and reinforce base layers in road construction. When filled with compacted materials, they confine soil movement laterally, creating a stiff, stable mattress layer.
- **Statement 2 is incorrect:** Geocells are manufactured from durable geosynthetic materials like high-density polyethylene (HDPE) or polyester. Their high tensile strength and resistance to environmental degradation make them excellent for demanding long-term engineering projects, including steep embankments, retaining walls, and airport runways.

5. Consider the following statements regarding ANEEL nuclear fuel:

- 1. It is an advanced nuclear fuel option that blends fertile Thorium-232 with High-Assay Low-Enriched Uranium (HALEU) to trigger sustainable reaction cycles.
- 2. The proprietary fuel composition is designed to be used directly within existing, indigenously developed Pressurized Heavy Water Reactors (PHWRs).
- 3. The chemical composition of spent ANEEL fuel yields a highly enriched plutonium byproduct, making it an excellent source material for manufacturing nuclear weapons.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 only
- (d) 1, 2 and 3

Correct Answer: (a)

Explanation:

- **Statements 1 and 2 are correct:** Developed by Clean Core Thorium Energy, ANEEL combines abundant Thorium-232 with HALEU (which acts as a "spark plug" to kickstart the reaction). It can be used directly in standard PHWRs, giving nations a way to utilize thorium cycles without building entirely new reactor architectures from scratch.
- **Statement 3 is incorrect:** A key non-proliferation benefit of ANEEL is that its spent fuel cannot be diverted or weaponized for military purposes. It burns fuel highly efficiently and leaves behind a waste stream that is significantly reduced in both volume and operating cost compared to traditional natural uranium.

6. Consider the following statements regarding the apnoea test:

- 1. It is a critical clinical test used to confirm the complete loss of brainstem function when determining brain death.
- 2. The test can be accurately administered to patients experiencing severe hypothermia or acute drug intoxication without any medical prerequisites.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** The apnoea test validates brainstem death by assessing whether a patient's respiratory drive responds to rising levels of carbon dioxide (CO_2) in the blood. If no breathing effort is observed as arterial CO_2 climbs to approximately 60 mmHg (or rises 20 mmHg from baseline), the test is considered positive for brainstem failure.
- **Statement 2 is incorrect:** The test demands strict prerequisites to prevent false conclusions. The patient must be hemodynamically stable, maintaining normal core body temperature, proper blood oxygenation, baseline carbon dioxide levels, and must be completely free of respiratory-depressing drugs before testing can begin.

7. Consider the following statements regarding the SACHET disaster alert platform:

1. The system was developed by the Centre for Development of Telematics (C-DOT) under the oversight of the National Disaster Management Authority (NDMA).
2. It operates strictly on a localized proprietary format, intentionally bypassing the international XML-based Common Alerting Protocol (CAP).
3. Upgraded functionalities use Cell Broadcast technology, allowing alerts to be pushed directly from mobile towers to millions of devices instantly without needing an active internet connection.
4. The platform functions as a geo-targeted system, ensuring that immediate threat alerts are delivered only to users physically located inside the designated hazard zone.

Which of the statements given above are correct?

- (a) 1, 2 and 3
- (b) 1, 3 and 4 only
- (c) 2 and 4 only
- (d) 1 and 3 only

Correct Answer: (b)

Explanation:

- **Statements 1, 3, and 4 are correct:** SACHET is an all-hazard emergency warning system operating across India. By utilizing Cell Broadcast technology alongside standard SMS, it can push emergency alerts to all mobile devices within a specific geographic area (e.g., a coastal strip facing a cyclonic storm surge). These messages cross-linguistically override normal phone behaviors, showing up as prominent pop-ups accompanied by unique alert tones.
- **Statement 2 is incorrect:** The platform is built specifically upon the Common Alerting Protocol (CAP), an internationally standardized XML-based format recommended by the International Telecommunication Union (ITU) to synchronize warnings across SMS, television, radio, and public sirens simultaneously.

8. Consider the following statements regarding the Sports Genomics Programme:

1. It is a state-level initiative launched by the Gujarat Biotechnology Research Centre (GBRC) in coordination with the Sports Authority of Gujarat.
2. The primary long-term objective of the database is to track age-related adaptation patterns and design personalized training protocols to enhance performance for the 2030 Commonwealth Games.

3. The sampling strategy is designed to collect data exclusively from urban weightlifting cohorts, omitting any evaluation of endurance sports or rural districts.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 only
- (d) 1, 2 and 3

Correct Answer: (a)

Explanation:

- **Statements 1 and 2 are correct:** This genomics program aims to build a comprehensive Athlete Genome Database by mapping genetic, physiological, and performance metrics. This data will help identify early athletic talent, isolate genetic markers linked to injury risks, and customize rehabilitation protocols for Indian sports teams.
- **Statement 3 is incorrect:** The sampling layout is broad and diverse, aiming to collect 2,000 samples annually over 5 years across all districts of the state. The target cohort covers 10 different sports disciplines equally divided between five endurance and five power sports.

9. Consider the following statements regarding Haemophilus influenzae type b (Hib) disease:

1. Hib is a dangerous viral infection that primarily targets respiratory mucosal tissues in geriatric populations over the age of 65.
2. The pathogen is transmitted from person to person through respiratory droplets or prolonged close contact with an infected individual.
3. Within India's Universal Immunization Programme (UIP), protection against Hib is delivered through the multi-disease Pentavalent Vaccine.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (b)

Explanation:

1. **Statement 1 is incorrect:** Hib is caused by a bacterium, not a virus. Furthermore, its primary target demographic is young children under 5 years of age, who are highly vulnerable to its severe complications.
2. **Statement 2 is correct:** The bacteria spread through droplets produced when infected individuals cough or sneeze, or via close contact. If untreated, the infection can quickly cause life-threatening conditions like meningitis, epiglottitis, pneumonia, and sepsis.
3. **Statement 3 is correct:** India helps prevent Hib through its routine Universal Immunization Programme via the Pentavalent Vaccine, which shields young children from five specific health threats: Diphtheria, Pertussis, Tetanus, Hepatitis B, and Hib.

10. This monoclonal antibody drug, known generically as pembrolizumab, functions as an immune checkpoint inhibitor. By attaching to PD-1 receptors on T cells, it blocks their interaction with PD-L1 receptors on cancer cells, allowing the patient's own immune system to recognize and destroy tumors. Identify this drug:

- (a) NexCar19
- (b) Keytruda

- (c) Ceftriaxone
- (d) Inconel-718

Correct Answer: (b)

Explanation:

- **Keytruda (brand name for pembrolizumab)** is a widely utilized monoclonal antibody that acts as an immune checkpoint inhibitor. Cancer cells often escape detection by binding to T-cell receptors, effectively turning off the body's immune response.
- Keytruda blocks this interaction, removing the molecular "brakes" so T cells can actively seek out and eliminate tumor cells. It is used in tertiary care facilities worldwide to treat a variety of advanced malignancies, including non-small cell lung cancer, cervical cancer, renal cell carcinoma, and triple-negative breast cancer.

New Technologies

1. Consider the following statements regarding Aqueous Zinc-Ion Batteries (ZIBs):

1. They utilize metallic zinc as the anode and an entirely aqueous electrolyte, creating a non-flammable alternative to conventional lithium-ion systems.
2. The high-performance modified vanadium oxide cathode, developed by IIT Madras, introduces structural porous pathways that selectively block hydrogen ions while accelerating zinc ion transport.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Detailed Explanation

- **Statement 1 is correct:** Aqueous zinc-ion batteries use zinc metal as the anode and an aqueous electrolyte. This design makes the system non-flammable, safer, and more environmentally friendly than lithium batteries, as it relies on abundant zinc rather than scarce lithium or cobalt.
- **Statement 2 is incorrect:** The high-performance ZIB cathode was developed by researchers at the Centre for Nano and Soft Matter Sciences (CeNS), Bengaluru. Additionally, the thermo-electrochemical activation process modifies the structure of to create porous pathways that allow both zinc ions and hydrogen ions to move easily, improving stability during ion insertion rather than blocking them.

2. Consider the following statements regarding the Kavach 4.0 safety system:

1. It is an indigenous Automatic Train Protection system developed by the Research Design and Standards Organisation (RDSO) in collaboration with Indian industry.
2. The network avoids the use of physical track infrastructure, relying entirely on satellite-guided GPS links to manage emergency braking.
3. Kavach 4.0 integrates directly with Electronic Interlocking systems to receive real-time updates on track occupancy and signal status in complex railway yards.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only

(d) 1, 2 and 3

Correct Answer: (c)

Detailed Explanation

- **Statements 1 and 3 are correct:** Kavach is India's indigenous ATP system designed to achieve zero accidents by preventing trains from passing signals at danger (SPAD) and managing overspeeding. The upgraded Kavach 4.0 features enhanced precision in crowded railway yards and integrates directly with Electronic Interlocking systems.
- **Statement 2 is incorrect:** The system does not avoid physical track infrastructure. It operates through a real-time network that explicitly requires RFID tags laid on the tracks, alongside on-board equipment in locomotives and radio towers at stations communicating via UHF radio and Optical Fibre Networks.

3. Consider the following statements regarding the Floating LiDAR Buoy system:

1. It is a sophisticated marine platform developed by the National Institute of Ocean Technology (NIOT) to map offshore wind energy potential.
2. The platform operates on the principle of optical remote sensing, emitting infrared laser pulses and measuring the Doppler Shift of backscattered light from atmospheric aerosols.
3. Unlike traditional anemometers, the integrated LiDAR unit is structurally limited to measuring wind conditions exclusively at the sea surface line.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
(b) 2 and 3 only
(c) 1 only
(d) 1, 2 and 3

Correct Answer: (a)

Detailed Explanation

- **Statements 1 and 2 are correct:** Developed by NIOT (Ministry of Earth Sciences), the Floating LiDAR (Light Detection and Ranging) Buoy maps offshore wind energy and assists in cyclone tracking. It calculates wind speed and direction by tracking the Doppler Shift of infrared laser pulses that reflect off dust, aerosols, and water droplets in the air.
- **Statement 3 is incorrect:** A primary advantage of the Floating LiDAR Buoy is its ability to perform high-resolution vertical profiling. Unlike traditional surface-bound anemometers, it can measure wind conditions at multiple heights up to 300 meters above sea level.

4. Consider the following statements regarding the behavior of AI Tokens in Large Language Models (LLMs):

1. A token represents the smallest unit of data processed by an LLM, and it can consist of a single character, a part of a word, or an entire word.
2. The context window of an AI model represents a flexible, unlimited storage space that allows the model to remember all historical interactions indefinitely without re-sending data.

Which of the statements given above is/are correct?

- (a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

Correct Answer: (a)

Detailed Explanation

- **Statement 1 is correct:** LLMs do not read text word-for-word like humans; instead, tokenizers break text down into tokens. These tokens are then converted into numerical vectors that the model processes using mathematical patterns.
- **Statement 2 is incorrect:** Every AI model has a finite context window limit (e.g., 128k tokens), which strictly defines how much data it can process at one time. Furthermore, LLMs are generally stateless, meaning they process data in chunks and do not retain memory of who a user is unless the previous tokens of the conversation are explicitly re-sent to the model in each new prompt.

5. Consider the following statements regarding the Moltbook platform:

1. It is an AI-only social network where authenticated AI agents interact autonomously via APIs, completely excluding human participation in conversations.
2. The platform is structured around topic-based communities termed submolts, where interactions are driven by probabilistic reasoning and context windows.
3. The platform operates on pre-programmed human scripts that strictly prevent the emergence of unscripted social behaviors, mock political systems, or cultural norms among the agents.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (a)

Detailed Explanation

- **Statements 1 and 2 are correct:** Moltbook is an AI-only environment resembling Reddit where humans act as passive spectators. AI agents powered by advanced models (like GPT, Claude, and Gemini families) communicate via APIs, posting, debating, and organizing communities autonomously.
- **Statement 3 is incorrect:** The platform has demonstrated unscripted evolution and emergent social behaviors. Without explicit programming or predefined human scripts, the interacting AI agents spontaneously formed mock religions, political debates, cryptocurrencies, unique humor, and cross-model family recognition based on their lineage.

6. Consider the following statements regarding bio-based chemicals and industrial enzymes:

1. Bio-based chemicals are synthesized from fossil hydrocarbons through high-pressure petrochemical refinery processes.
2. Industrial enzymes are biological catalysts, primarily proteins, produced through microbial fermentation followed by purification.
3. Because enzymes exhibit low specificity, they generate high amounts of unexpected chemical byproducts, reducing industrial process efficiency.
4. Enzymes operate efficiently at lower temperatures and pressures compared to standard chemical catalysts, lowering industrial energy footprints.

Which of the statements given above are correct?

- (a) 1 and 3
- (b) 2 and 4 only
- (c) 1, 2 and 4
- (d) 1 and 4 only

Correct Answer: (b)

Detailed Explanation

- **Statements 2 and 4 are correct:** Industrial enzymes are proteins derived from microbial fermentation. They accelerate chemical reactions at lower temperatures and operating pressures, offering a highly sustainable and energy-efficient solution for textile processing, food manufacturing, and pharmaceuticals.
- **Statement 1 is incorrect:** Bio-based chemicals are derived from renewable biological feedstocks (such as agricultural residues, corn, starch, or sugarcane) rather than fossil hydrocarbons.
- **Statement 3 is incorrect:** Enzymes are characterized by high specificity. Their precise catalytic action ensures they target specific substrates, which minimizes waste, prevents unexpected byproducts, and improves overall manufacturing efficiency.

7. Consider the following statements regarding Bio-bitumen:

1. It is a bio-based binder used in road construction produced from agricultural residues, specifically rice straw pellets processed via fast pyrolysis.
2. Real-world structural feasibility was validated through a field trial stretch laid on the Jorabat-Shillong Expressway (NH40) in Meghalaya.
3. Engineering specifications state that bio-bitumen can safely replace a maximum of 5% of conventional petroleum bitumen without causing premature cracking.
4. Due to the high volatile nature of bio-oil fractions, bio-bitumen roads are incapable of resisting moisture damage or vehicular rutting.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 4 only
- (c) 1, 2 and 4
- (d) 3 and 4 only

Correct Answer: (a)

Detailed Explanation

- **Statements 1 and 2 are correct:** Developed by CSIR institutes (including CSIR-CRRI and CSIR-IIP), bio-bitumen utilizes refined bio-oil extracted from the oxygen-free thermal breakdown (pyrolysis) of rice straw pellets. Its real-world performance was proven in a 100-meter trial stretch on NH40 in Meghalaya.
- **Statement 3 is incorrect:** Testing confirms that bio-bitumen can safely replace a significant portion 20% to 30% of conventional petroleum bitumen, helping reduce crop residue burning and lower construction costs.
- **Statement 4 is incorrect:** The final blended product undergoes strict physical, chemical, and rheological validation. It has been successfully tested and approved for its resistance to rutting, cracking, and moisture damage, matching or exceeding national highway performance standards.

8. Consider the following statements regarding Biomaterials:

1. Drop-in biomaterials are chemically identical to conventional petroleum-based plastics and can be integrated into existing manufacturing lines without machinery upgrades.
2. Drop-out biomaterials, such as Polylactic Acid (PLA), are chemically unique alternatives that can be seamlessly mixed into standard plastic recycling streams without separate handling.
3. Through genetic engineering of fermenting microorganisms, scientists can program or tune the degradation rate, flexibility, and mechanical strength of novel biomaterials.

Which of the statements given above is/are correct?

- (a) 1 and 2 only

- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (c)

Detailed Explanation

- **Statements 1 and 3 are correct:** Drop-in biomaterials (like Bio-PET) are plug-and-play resources identical to their petrochemical counterparts, allowing manufacturers to use them immediately. Additionally, by engineering microbes like *Xanthomonas* in fermentation vessels, researchers can precisely tune the polymers' structural attributes, biocompatibility, and degradation profiles.
- **Statement 2 is incorrect:** Drop-out biomaterials (like PLA) possess chemically unique structures. Because they do not mix with standard plastic recycling streams, they cannot be processed in traditional facilities and require entirely separate end-of-life handling, such as industrial composting facilities.

9. Consider the following statements regarding Sixth-Generation Aero Engines:

1. They feature variable-cycle (three-stream) technology that automatically switches between high-thrust configurations for combat and high-bypass modes for fuel-efficient cruising.
2. India's Kaveri Engine project has already achieved certified operational 6th-generation status, enabling India to build its Advanced Medium Combat Aircraft (AMCA) without any foreign OEM collaboration.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Detailed Explanation

- **Statement 1 is correct:** Sixth-generation engines are advanced, variable-cycle powerplants that optimize airflow automatically based on flight conditions. They serve as electrical and thermal hubs, generating the massive power outputs required for directed-energy weapons (lasers) and advanced avionics while using Ceramic Matrix Composites (CMCs) to withstand extreme operational temperatures.
- **Statement 2 is incorrect:** India has historically faced hurdles with indigenous military turbofan development, and the Kaveri Engine project did not achieve its original targeted fighter jet specifications. To secure 6th-generation capabilities for the AMCA roadmap, defense experts and the DRDO indicate that India will likely require a multi-billion dollar co-development partnership with a foreign original equipment manufacturer (OEM), such as France's Safran.

10. Consider the following statements regarding Tensor Processing Units (TPUs):

1. A TPU is a custom Application-Specific Integrated Circuit (ASIC) designed specifically to accelerate matrix-heavy computations and machine learning workloads.
2. TPUs achieve high parallel computing throughput by bypassing matrix-multiply units (MXUs) to process sequential text data one character at a time.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2

(d) Neither 1 nor 2

Correct Answer: (a)

Detailed Explanation

- **Statement 1 is correct:** TPUs are specialized ASICs engineered by Google to accelerate deep neural network workloads (such as running TensorFlow infrastructure). They are optimized to handle the massive mathematical demands of frontier AI models.
- **Statement 2 is incorrect:** TPUs achieve massive parallel throughput precisely by using large matrix-multiply units (MXUs), such as 128 times 128 Arithmetic Logic Unit (ALU) arrays. Instead of processing data sequentially one character at a time, they process data in matrix form, running tens of thousands of multiply-accumulate operations simultaneously per clock cycle to optimize efficiency during weeks-long training runs.

New Technologies

1. Consider the following statements regarding Voice over WiFi (VoWiFi) technology recently launched by BSNL:

1. It permits users to execute voice calls and transmit SMS text messages across a Wi-Fi network instead of relying on cellular base stations.
2. The architectural framework utilizes the IP Multimedia Subsystem (IMS) to handle smooth handovers between cellular networks and Wi-Fi networks.
3. Access to the network requires the installation of a verified third-party mobile application to handle secondary authentication.
4. If the active Wi-Fi signal deteriorates, the system automatically migrates the live call to a VoLTE network without causing a call drop.

Which of the statements given above are correct?

- (a) 1 and 3
- (b) 2 and 4 only
- (c) 1, 2 and 4
- (d) 1 and 4 only

Correct Answer: (c)

Explanation:

- **Statements 1, 2, and 4 are correct:** VoWiFi routes voice and SMS data over internet networks using digital packets, resolving connectivity issues in basements, rural areas, or signal-dark spots. It runs on the IP Multimedia Subsystem (IMS), ensuring seamless call continuity (handover) to cellular networks (VoLTE) when the Wi-Fi connection weakens.
- **Statement 3 is incorrect:** VoWiFi is an application-free technology that runs natively through the smartphone's built-in software dialer. It uses the phone's physical SIM card for hardware-level security and identity verification, eliminating the need for any third-party software applications.

2. Consider the following statements regarding the humanoid robot ASC ARJUN:

1. It is an artificial intelligence-powered system deployed to assist the Railway Protection Force (RPF) in station surveillance, crowd management, and passenger assistance.
2. It was indigenously designed and built using home-grown technology by an Indian Railways technical team in Visakhapatnam.

3. The platform features semi-autonomous navigation with obstacle avoidance for platform patrols and automatically translates public announcements into English, Hindi, and Telugu.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 only
- (d) 1, 2 and 3

Correct Answer: (d)

Explanation:

- **Statements 1, 2, and 3 are correct:** ASC ARJUN is an indigenous humanoid robot designed by an Indian Railways technical team in Visakhapatnam and deployed at the Visakhapatnam Railway Station (East Coast Railway).
- It optimizes RPF deployment by incorporating a Face Recognition System (FRS), real-time fire and smoke sensors, and semi-autonomous platform patrolling capabilities. Additionally, it offers multilingual passenger interaction capabilities (English, Hindi, and Telugu) along with welcoming human gestures.

3. Consider the following statements regarding Vehicle-to-Vehicle (V2V) Communication Technology:

- 1. It acts as a wireless network allowing nearby automobiles to exchange speed, braking, and positional data directly without relying on cellular network towers.
- 2. The communication protocol utilizes a specialized radio frequency band of 5.875–5.905 GHz authorized by the Department of Telecommunications (DoT).
- 3. The platform provides a fixed 180-degree front-facing safety warning system, making it structurally unable to detect blind spots along the sides or rear of the vehicle.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 only
- (d) 1, 2 and 3

Correct Answer: (a)

Explanation:

- **Statements 1 and 2 are correct:** V2V technology enables real-time interaction between moving cars using small internal hardware communication modules. It functions independently of cellular network coverage by operating over a designated short-range radio frequency band (5.875–5.905 GHz) assigned by the DoT, which helps prevent highway pile-ups in dense fog.
- **Statement 3 is incorrect:** The system features 360-degree communication capabilities. It processes safety hazards and provides alerts from all directions front, rear, and sides allowing it to flag vehicles moving beyond the driver's direct line of sight or within blind spots.

4. Consider the following statements regarding the SIM Binding security mandate:

- 1. It acts as a hardware token mechanism that continuously links a messaging service to unique SIM card hardware identifiers like the IMSI and ICCID, disabling the application if the registered SIM is physically removed from the device.
- 2. The rules mandate that web-based mirror clients of these messaging platforms must maintain continuous permanent logins to prevent cross-border cyber fraud.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** Administered by the Department of Telecommunications (DoT) under the Telecommunication Cybersecurity Amendment Rules, 2025, SIM binding pairs an application account with hardware-level data (IMSI, ICCID, and the Ki key). This prevents bad actors from spoofing accounts or bypassing OTP protections from outside the country when the physical SIM card is missing.
- **Statement 2 is incorrect:** To minimize security gaps and stop unauthorized access, the government order explicitly states that web versions (such as WhatsApp Web) must automatically log out every six hours rather than remaining logged in permanently.

5. Consider the following statements regarding India's first indigenous High-Precision Diode Laser:

1. It was developed by deep-tech startup Prenishq Pvt. Ltd., a spin-off from IIT Delhi, with support from the National Quantum Mission (NQM).
2. The architecture is engineered to deliver stable, tunable, long-duration light outputs across a spectrum ranging from Ultraviolet (UV) to Near-Infrared (Near-IR).
3. Due to its narrow operational linewidth, the hardware is strictly restricted to educational laboratories and cannot be utilized for Quantum Key Distribution (QKD) or atomic clock metrology.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (a)

Explanation:

- **Statements 1 and 2 are correct:** Supported by the NQM, this compact, high-precision laser provides long-term frequency and power stability across a wide wavelength range (UV to Near-IR). This flexibility allows it to support various quantum computing and sensing configurations.
- **Statement 3 is incorrect:** The ultra-narrow linewidth and high beam quality are highly advantageous for specialized applications. It is engineered specifically to serve as a backbone for Quantum Key Distribution (QKD), to protect secure banking networks, to control qubits in photonic quantum processors, and to support optical atomic clocks for precise metrology.

6. Consider the following statements regarding the DRISHTI surveillance platform:

1. It is an artificial intelligence-powered tracking system designed to monitor the door-locking status of cargo freight wagons in real time during transit.
2. The system was co-developed as a joint innovation initiative between the Northeast Frontier Railway (NFR) and IIT Guwahati.
3. The platform uses a system of manual wireless proximity sensors that require freight trains to halt completely at checking stations to verify lock configurations.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only

- (c) 1 only
(d) 1, 2 and 3

Correct Answer: (a)

Explanation:

- **Statements 1 and 2 are correct:** Developed through a partnership between NFR and IIT Guwahati – Technology Innovation and Development Foundation (IITG TIDF), 'DRISHTI' uses computer vision and machine learning models to identify unlocked, tampered, or improperly secured wagon doors.
- **Statement 3 is incorrect:** The platform automates anomaly detection without disrupting train operations. It uses wagon-mounted cameras and advanced analytics to spot structural variations dynamically while the train is moving, eliminating the need for slow, manual, stationary checks.

7. Consider the following statements regarding Project Suncatcher:

1. It is an advanced research initiative launched by Google to establish orbital, solar-powered AI data centers using Tensor Processing Units (TPUs) aboard satellites.
2. The orbital data centers eliminate reliance on ground-based fiber systems by using free-space optical laser communication links between satellite nodes.

Which of the statements given above is/are correct?

- (a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

Correct Answer: (c)

Explanation:

- **Statements 1 and 2 are correct:** Google's Project Suncatcher aims to move resource-intensive AI calculations into space, bypassing the land, water, and carbon footprint of terrestrial data centers. The constellation relies on high-efficiency space solar panels and radiation-tested AI hardware accelerators (Trillium v6e TPUs). These satellite clusters communicate with one another using free-space optical data links capable of transmitting tens of terabits per second.

8. Consider the following statements regarding the Quantum Echoes algorithm:

1. It is a quantum algorithm developed by Google Quantum AI that uses out-of-time-order correlators (OTOC) to analyze how data spreads, scrambles, and reverses within a quantum architecture.
2. The algorithm runs a time-reversal simulation that produces a measurable echo to trace hidden quantum interactions and interference patterns.
3. The process was validated using classical supercomputers, proving that the underlying interference effects can be easily replicated without specialized quantum hardware.

Which of the statements given above are correct?

- (a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

Correct Answer: (a)

Explanation:

- **Statements 1 and 2 are correct:** Tested on the Willow quantum processor, the Quantum Echoes algorithm acts as an experimental time-reversal setup. It sends a signal into a network of qubits, tracks

its evolution, and introduces a small mid-process disruption to measure how information scrambles and reforms.

- **Statement 3 is incorrect:** The primary purpose of the experiment was to demonstrate a verifiable quantum advantage. The system confirmed true quantum interference phenomena that classical supercomputers cannot replicate efficiently, offering a valuable new tool for molecular modeling, drug discovery, and materials science.

9. Consider the following statements regarding Quantum Noise:

1. It represents random environmental disturbances that lead to decoherence, causing unstable entangled states in quantum systems.
2. Under mathematical profiling models, quantum noise behaves in a completely deterministic way, ensuring that environmental interactions consistently generate or boost quantum entanglement.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** Quantum noise stems from Heisenberg's Uncertainty Principle along with thermal or electromagnetic interactions. Because even advanced laboratories cannot completely isolate a quantum system, this noise causes errors and breaks down the links between entangled particles.
- **Statement 2 is incorrect:** Quantum noise exhibits non-deterministic behavior. While it is modeled through specific mathematical channels (like amplitude or phase damping), its effects are random. Although it typically disrupts and degrades quantum systems, it can occasionally alter or even spontaneously generate entanglement under certain specific conditions.

10. Consider the following statements regarding Two-Factor Authentication (2FA):

1. It requires identity verification using two distinct elements: a knowledge factor (such as a password) and a possession factor (such as an authenticator app or hardware token).
2. The Time-based One-Time Password (TOTP) standard relies entirely on a continuous mobile internet connection, making it impossible for authentication apps to generate valid verification codes while offline.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** 2FA improves security by adding a second layer of verification beyond standard passwords, making brute-force attacks and credential interception much harder.
- **Statement 2 is incorrect:** Authenticator apps work completely offline. The TOTP protocol (standardized by the IETF) generates codes locally using a shared cryptographic secret key and the current time counter (typically changing every 30 seconds via HMAC functions), meaning the device does not need an active internet connection to authenticate.

New Technologies-II

1. X, born in the UK, was conferred the Nobel Prize in 2025. He was a professor in an American university when this prize was announced. Identify 'X':

- (a) Michel H. Devoret
- (b) Richard Robson
- (c) John Clarke
- (d) Joel Mokyr

Correct Answer: (a)

Explanation:

- Michel H. Devoret, a British-born physicist who built a highly distinguished academic and research career as a professor at an American institution (Yale University), was awarded the Nobel Prize in Physics in 2025 for his foundational contributions to quantum computing architectures, superconducting qubits, and artificial atoms.

2. Consider the following statements regarding the 'VIKRAM3201' processor:

1. It is a 32-bit indigenously designed semiconductor chip developed by ISRO's Semiconductor Laboratory (SCL) in Mohali, Punjab.
2. The architecture is engineered to run exclusively on civilian automotive engines and is structurally incapable of operating in space launch vehicles.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** The VIKRAM3201 chip is a 32-bit semiconductor processor designed and manufactured in India. It was developed by ISRO's Semiconductor Laboratory (SCL) located in Mohali, Punjab, under the umbrella of the India Semiconductor Mission launched in 2021. Its goal is to build strategic self-reliance in critical technologies and reduce India's dependence on imported chips.
- **Statement 2 is incorrect:** The processor is specifically engineered with a robust architecture designed to withstand harsh environmental conditions, such as those found in space launch vehicles and defence hardware. Far from being restricted to civilian use, it is built for high-reliability applications across aerospace, defence, automotive, and industrial electronic systems.

3. Consider the following statements with regard to Accelerator Mass Spectrometry (AMS) dating:

1. Unlike conventional radiometric techniques, AMS directly counts individual carbon atoms rather than waiting to detect radioactive decay events.
2. The carbon sample is converted into highly pure liquid ethanol before being bombarded by a high-energy cesium ion beam.
3. The method requires extremely small sample sizes, allowing precise chronological validation using quantities as low as 20 mg.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

Correct Answer: (c)

Explanation:

- **Statements 1 and 3 are correct:** Accelerator Mass Spectrometry (AMS) is an advanced radiocarbon dating method that calculates the ratio of Carbon-14 isotopes by isolating and counting individual atoms based on mass. This approach makes it much faster and more accurate than older radiometric tools. Because its sensitivity is exceptionally high, it requires up to 1,000 times less material (as little as 20 mg), making it ideal for rare, fragile, or precious artifacts like ancient seeds or blood residues.
- **Statement 2 is incorrect:** During sample preparation for AMS analysis, the processed archaeological material must be chemically converted into solid graphite, not liquid ethanol. This graphite target is then bombarded with a cesium ion beam to produce the negatively charged carbon ions needed for acceleration.

4. Consider the following statements regarding Altermagnets:

1. They represent a distinct magnetic class that features internal spin ordering like antiferromagnets while maintaining zero net magnetization externally.
2. The specific altermagnetic behavior within Chromium Antimonide (CrSb) was discovered by the Indian Institute of Science (IISc), Bengaluru.
3. CrSb crystals demonstrate Direction-Dependent Conduction Polarity (DDCP), behaving as an n-type conductor along crystal layers and a p-type conductor across them.
4. Due to low thermal thresholds, altermagnets collapse into basic paramagnetic states when exposed to temperatures slightly above 0 degree Celsius.

Which of the statements given above are correct?

(a) 1 and 3

(b) 2 and 4 only

(c) 1, 2 and 4

(d) 1 and 4 only

Correct Answer: (a)

Explanation:

- **Statements 1 and 3 are correct:** Altermagnets are a unique class of materials that offer the high-speed operational advantages of ferromagnets without producing an external magnetic signature. In Chromium Antimonide, asymmetric spin and charge distributions produce Direction-Dependent Conduction Polarity (DDCP)—electrons carry the charge (n-type) along the layers, while holes take over (p-type) across the layers. This eliminates the need for separate materials or complex physical junctions in advanced spintronic memory devices.
- **Statement 2 is incorrect:** This specific altermagnetic behavior in CrSb was discovered and mapped by researchers at the S.N. Bose National Centre for Basic Sciences, Kolkata, an autonomous institution under the Department of Science and Technology (DST), Government of India.
- **Statement 4 is incorrect:** CrSb displays high thermal stability. It preserves its internal magnetic ordering at temperatures more than twice room temperature, proving it can operate reliably under the challenging conditions of industrial electronics.

5. Consider the following statements with regard to HALEU-Thorium nuclear fuel:

1. A commercial variant of this fuel blend, known as ANEEL, has been developed by a specialized energy firm based in the United States.

2. The fuel matrix is manufactured by enriching natural uranium to a concentration exceeding 85% of the fissile isotope U-235 before blending it with Thorium.
3. The design enables the immediate utilization of Thorium in existing Pressurised Heavy Water Reactors (PHWRs) without waiting for the third stage of India's nuclear power program.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (c)

Explanation:

- **Statements 1 and 3 are correct:** HALEU-Thorium (HALEU-Th) fuel mixes High Assay Low Enriched Uranium with Thorium. Clean Core Thorium Energy (CCTE), a US-based firm, developed a commercial version called ANEEL. This fuel allows nuclear power programs to use Thorium right away in current Pressurised Heavy Water Reactors (PHWRs). This sidesteps the long wait to deploy the complex third stage of India's traditional nuclear expansion roadmap, while cutting radioactive waste output by up to 86%.
- **Statement 2 is incorrect:** The uranium component in this fuel is enriched strictly between 5% and 20% U-235 (defined as HALEU). Keeping the enrichment below the 20% limit ensures the material remains non-weapons grade, complying with global non-proliferation standards. Enriching uranium beyond 20% creates Highly Enriched Uranium (HEU), which is restricted due to its weaponization potential.

6. Consider the following statements with regard to the Greenwald Limit in nuclear fusion research:

1. It defines a theoretical plasma density ceiling for donut-shaped tokamak reactors, beyond which the magnetic confinement system destabilizes and collapses.
2. China's Experimental Advanced Superconducting Tokamak (EAST) recently confirmed that maintaining a stable plasma state becomes mathematically impossible once density reaches 50% of this limit.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** The Greenwald limit establishes a direct relationship between the maximum safe density of plasma fuel, the physical size of the reactor, and the plasma current. Exceeding this boundary has long been a major bottleneck in fusion development, causing the hot plasma to destabilize and terminate before reaching self-sustaining ignition conditions.
- **Statement 2 is incorrect:** China's EAST fusion reactor achieved a major breakthrough by exceeding the Greenwald limit, maintaining stable plasma densities up to 65% *beyond* this theoretical boundary. This achievement shows that the historical density ceiling can be overcome, clearing a path toward practical, high-density magnetic confinement fusion.

7. Consider the following statements with regard to Radioactive Iodine Therapy (RAI):

1. It utilizes specific radioisotopes, such as Iodine-131, to diagnose and treat hyperactive thyroid glands and thyroid malignant tumors.
2. The therapeutic mechanism relies on emitted alpha particles to selectively destroy surrounding non-thyroid muscular tissue while leaving the thyroid gland completely unaffected.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** Radioactive Iodine Therapy (RAI) using Iodine-131 is a cornerstone of nuclear medicine's theranostic (therapy + diagnostics) framework. First proposed in the 1930s, it provides a targeted, non-invasive treatment option where patients simply ingest a capsule or liquid.
- **Statement 2 is incorrect:** The treatment works because thyroid cells naturally absorb iodine. Once inside, emitted beta particles destroy the overactive or cancerous thyroid tissue from within. At the same time, the isotope emits gamma rays, which allow clinicians to capture diagnostic images and track the patient's progress while sparing healthy, non-thyroid tissues from radiation.

8. Consider the following statements with regard to Optical Atomic Clocks:

1. They determine the length of a second by measuring light-wave oscillations from atoms stimulated in the optical frequency range rather than microwave frequencies.
2. Electronic transitions are measured using specific ions and atoms, including Strontium-87 and Ytterbium-171.
3. Due to the high volatility of light waves, optical clocks are less stable than traditional cesium clocks, losing approximately one second every few hundred years.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (a)

Explanation:

- **Statements 1 and 2 are correct:** Next-generation optical atomic clocks track electronic transitions in the optical frequency range using highly stable elements like Strontium-87, Ytterbium-171, and Indium-115 ions. These atoms are held in specialized optical lattices or ion traps and are stimulated by fine-tuned lasers.
- **Statement 3 is incorrect:** Optical transitions use light waves operating at roughly 10^{15} Hz, which is 10,000 times faster than the microwave transitions used in traditional cesium clocks 10^9 Hz. This higher frequency gives them much better stability and precision. The most advanced optical clocks are accurate to 18 decimal places and lose just one second every 15 billion years, making them far superior to cesium-based clocks.

9. Consider the following statements regarding Biologics:

1. Biologics are large, complex proteins derived from living systems such as microorganisms, mammalian cells, or plant tissues.

2. Unlike small-molecule drugs synthesized through predictable chemical reactions, biologics require extensive testing for every individual batch because they are grown rather than manufactured.
3. The Biopharma SHAKTI strategy focuses entirely on expanding standard chemical synthesis models, actively banning the use of bioreactors for cell cultures.
4. Because biologics possess simple linear molecular structures identical to aspirin, they lack the capacity to target specific human immune pathways.

Which of the statements given above are correct?

- (a) 1 and 3
(b) 1 and 2 only
(c) 1, 2 and 4
(d) 3 and 4 only

Correct Answer: (b)

Explanation:

- **Statements 1 and 2 are correct:** Biologics are large, highly complex proteins produced by inserting target DNA sequences into host cells (such as bacteria, yeast, or mammalian cells) and growing them in large bioreactors. Because these drugs are grown within living biological systems rather than built through purely chemical synthesis, every batch must undergo rigorous testing to ensure safety, purity, and structural consistency.
- **Statement 3 is incorrect:** Announced in the Union Budget 2026, the Biopharma SHAKTI strategy is specifically designed to boost domestic production of biologics and biosimilars. It also promotes a shift toward non-animal testing models, encouraging the use of advanced bioreactors and cell culture methods.
- **Statement 4 is incorrect:** Biologics have high molecular complexity and are much larger than traditional small-molecule drugs like aspirin. This intricate structure allows them to bind to specific human receptors and immune pathways, providing highly targeted therapies for complex diseases like cancer, rheumatoid arthritis, and diabetes.

10. Consider the following statements regarding the Maha MedTech Mission:

1. It is a national initiative jointly launched by the Anusandhan National Research Foundation (ANRF), the Indian Council of Medical Research (ICMR), and the Bill & Melinda Gates Foundation.
2. The mission completely excludes funding for artificial intelligence (AI) and robotics, focusing its financial grants exclusively on simple plastic medical consumables.

Which of the statements given above is/are correct?

- (a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** The Mission for Advancement in High-Impact Areas (MAHA)-MedTech is a collaborative national program backed by the ANRF, ICMR, and the Bill & Melinda Gates Foundation. Its goal is to reduce India's reliance on costly medical imports, boost domestic manufacturing, and improve access to medical devices aligned with national health priorities like tuberculosis, cancer, and neonatal care.
- **Statement 2 is incorrect:** The mission features a broad scope that actively includes advanced technologies like AI/ML-based diagnostic tools, robotics, medical implants, and assistive technologies.

To support these innovations, it provides substantial funding ranging from ₹5 crore to ₹25 crore per project (and up to ₹50 crore for exceptional cases) to eligible startups, MSMEs, and research groups. It also provides regulatory and intellectual property support through platforms like MedTech Mitra and Patent Mitra.

New Technologies-III

1. Consider the following statements regarding the Research Development and Innovation (RDI) Scheme:

1. It is a long-term financial support initiative launched under the nodal administration of the Department of Science and Technology (DST).
2. The strategic direction of the scheme is guided by the Anusandhan National Research Foundation (ANRF), which is chaired by the Union Minister of Finance.
3. The policy prioritizes low-TRL (Technology Readiness Level) projects over commercialized high-TRL projects to focus strictly on pure theoretical physics.
4. It establishes a dedicated Deep-Tech Fund of Funds (FoF) to finance advanced frontiers such as artificial intelligence, quantum technologies, and semiconductors.

Which of the statements given above are correct?

- (a) 1 and 3 only
- (b) 2 and 4 only
- (c) 1 and 4 only
- (d) 1, 2, 3 and 4

Correct Answer: (c)

Explanation:

- **Statements 1 and 4 are correct:** The RDI scheme is a long-term initiative launched by the Government of India under the Department of Science and Technology (DST) to scale up private sector participation in high-end research and technology commercialization. It includes a ₹1 lakh crore corpus providing low or nil-interest loans, equity risk capital, and a dedicated Deep-Tech Fund of Funds (FoF) targeting critical frontiers like AI, quantum computing, biotechnology, and semiconductors.
- **Statement 2 is incorrect:** While the scheme has policy oversight from an Empowered Group of Secretaries (EGoS) led by the Cabinet Secretary, the Anusandhan National Research Foundation (ANRF) provides strategic direction and is chaired by the Prime Minister of India, not the Union Minister of Finance.
- **Statement 3 is incorrect:** The policy framework explicitly prioritizes high-TRL (Technology Readiness Level) projects rather than restricting focus to low-TRL theoretical research. This prioritization aims to fast-track market readiness, scale up commercialization, and accelerate self-reliance in strategic domains.

2. Consider the following statements with regard to Superbugs:

1. They refer to specific strains of bacteria or fungi that have developed multi-drug resistance against standard clinical antibiotics or antifungals.
2. Microbes can acquire this drug resistance through natural genetic evolution as well as direct gene transfer between different microbial organisms.
3. Common superbugs are entirely limited to bacterial mutations like E. coli, as fungal species structurally cannot develop multi-drug resistance vectors.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (a)

Explanation:

- **Statements 1 and 2 are correct:** Superbugs are infectious strains of bacteria or fungi that have mutated to resist multiple antimicrobial therapies, rendering routine medications ineffective. They evolve through the misuse/overuse of antibiotics, incomplete patient dosing, and exposure inside high-risk hospital units. These pathogens can develop resistance via individual genetic mutations or through horizontal gene transfer, where separate microbes directly exchange protective genetic material.
- **Statement 3 is incorrect:** Superbugs are not limited to bacterial strains. Fungal pathogens, such as *Candida auris* and *Aspergillus fumigatus*, have shown rising resistance to standard antifungal treatments. This expanding resistance profile complicates hospital care and increases the risk of untreatable systemic infections.

3. Consider the following statements with regard to the BIRSA 101 gene therapy:

1. It is India's first indigenously developed CRISPR-based gene-editing therapy designed to target and cure Sickle Cell Disease (SCD).
2. The platform was engineered by the CSIR–Institute of Genomics & Integrative Biology (IGIB) in partnership with the Serum Institute of India (SIIPL).

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (c)

Explanation:

- **Statements 1 and 2 are correct:** BIRSA 101 represents India's first indigenous CRISPR-based gene therapy. Developed by CSIR-IGIB using their proprietary enFnCas9 platform, it aims to treat Sickle Cell Disease (SCD) a hereditary blood disorder that heavily impacts India's tribal communities. The project was named to honor the 150th birth anniversary of tribal leader Birsa Munda.
- By partnering with the Serum Institute of India (SIIPL) for technology transfer and large-scale manufacturing, the initiative aligns with India's goal of becoming Sickle Cell-Free by 2047. The collaboration aims to replace expensive global treatments (often costing ₹20–25 crore) with an affordable, localized option. The therapy works like precise genetic surgery, modifying the patient's stem cells to fix the mutations causing sickle-shaped red blood cells, enabling normal hemoglobin production after a single infusion.

4. Consider the following statements with regard to Lab-Grown Milk:

1. It utilizes precision fermentation where milk-producing genes are inserted into microbes like yeast to secrete authentic dairy proteins such as casein and whey.
2. Because it is chemically synthesized from plant-based almond extracts, it lacks the essential amino acid profile and calcium content found in cow's milk.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** Lab-grown milk, or animal-free dairy, is pioneered by food-tech firms using precision fermentation. Scientists insert milk-producing genes into host microbes like yeast, which are grown in bioreactors and fed sugar to secrete real milk proteins (casein and whey). These proteins are then blended with plant-derived fats, minerals, and carbohydrates to replicate traditional dairy.
- **Statement 2 is incorrect:** Lab-grown milk is nutritionally identical to traditional cow's milk and contains all nine essential amino acids along with standard calcium levels. Unlike plant-based substitutes (such as almond, soy, or oat milks) which are derived from crushed plant material, lab-grown dairy contains actual animal-free dairy proteins. Because these proteins are molecularly identical to those from a cow, products require allergen labels, though they remain naturally free of lactose, cholesterol, hormones, and antibiotics.

5. Consider the following statements with regard to Mpox (Monkeypox):

1. It is a viral zoonotic disease caused by a pathogen belonging to the Orthopoxvirus genus, which also includes the variola (smallpox) virus.
2. Because its natural evolutionary reservoir is definitively proven to be domesticated birds, the infection presents no health risk to pregnant women or immunocompromised individuals.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Detailed Explanation

- **Statement 1 is correct:** Mpox is caused by the monkeypox virus (MPXV), a member of the Orthopoxvirus genus within the Poxviridae family. This genus also contains the variola virus (the causative agent of smallpox), vaccinia virus, and cowpox virus. It was first identified in research monkeys in Denmark in 1958, and the first human case was recorded in 1970 in the Democratic Republic of the Congo.
- **Statement 2 is incorrect:** The exact natural reservoir of the monkeypox virus remains unknown. However, small mammals such as rodents, squirrels, and primates not domesticated birds are highly susceptible and involved in its transmission to humans via bites, scratches, or hunting. Furthermore, far from being harmless, Mpox can cause severe, life-threatening illness in vulnerable populations, including children, pregnant women, and immunocompromised individuals (especially HIV patients).

6. Consider the following statements with regard to Salmonella infections:

1. Salmonella is a bacterial pathogen that targets the intestinal tract, causing the foodborne illness known as salmonellosis.
2. Common transmission pathways include the consumption of undercooked poultry, raw eggs, or food cross-contaminated due to poor hygiene during preparation.

3. The infection can spread from person to person through direct contact with contaminated hands, surfaces, or food utensils.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (d)

Explanation:

- **Statements 1, 2, and 3 are correct:** Salmonella is a bacterial genus responsible for salmonellosis, an intestinal infection that causes diarrhea, abdominal cramps, fever, and vomiting, typically appearing 12 to 96 hours after exposure.
- The bacteria spread easily through undercooked chicken, raw eggs, unpasteurized dairy, contaminated produce, or handled processed foods like nut butters. It is also contagious between hosts, spreading via person-to-person contact or contact with infected animals (including pets and reptiles) when proper hand hygiene and sanitation are not maintained.

7. Consider the following statements with regard to the Human Papillomavirus (HPV) vaccination initiative:

- 1. The HPV vaccine is a recombinant product that incorporates virus-like particle genetic material to provoke an immune response without exposing the recipient to a live virus.
- 2. The government immunisation program utilizes Gardasil-4, which provides targeted protective efficacy against four specific high-risk and low-risk variants: HPV-16, 18, 6, and 11.
- 3. In alignment with recent global clinical findings, the government has adopted a three-dose initial schedule for 14-year-old girls to establish baseline cellular memory.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (a)

Explanation

- **Statements 1 and 2 are correct:** Human Papillomavirus (HPV) is a highly prevalent sexually transmitted virus. Chronic infection with high-risk oncogenic types, particularly types 16 and 18, can cause abnormal cell changes in the cervix that may advance to cervical cancer over a 10 to 15-year period. The vaccine is a non-live recombinant platform that trains the immune system using virus-like particles (VLPs). Gardasil-4 extends protection across both oncogenic variants (16 and 18) and types 6 and 11, which cause genital warts.
- **Statement 3 is incorrect:** The health initiative utilizes a single-dose schedule for the targeted 14-year-old cohort, rather than a three-dose strategy. Clinical evidence backed by the World Health Organization (WHO) demonstrates that a single dose provides robust immune responses and long-term protection comparable to multi-dose regimens for this specific age group. This single-dose configuration optimizes logistics and delivery via public health systems and the digital U-WIN platform.

8. Consider the following statements with regard to the Novel Oral Polio Vaccine Type 2 (nOPV2):

1. It is a next-generation live-attenuated vaccine engineered under the Global Polio Eradication Initiative (GPEI) to combat outbreaks driven by circulating vaccine-derived poliovirus type 2 (cVDPV2).
2. The vaccine features modified genetic structures that render it significantly less stable than older oral polioviruses, intentionally accelerating its mutation rate to clear infections rapidly.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation

- **Statement 1 is correct:** The novel oral polio vaccine type 2 (nOPV2) is an optimized immunisation tool prequalified by the WHO for outbreak response. It is deployed in targeted campaigns to interrupt the transmission of circulating vaccine-derived poliovirus type 2 (cVDPV2) without creating new transmission chains in communities with low routine immunisation coverage.
- **Statement 2 is incorrect:** The core advantage of nOPV2 is that it is genetically more stable than traditional oral polio vaccines. Its modified molecular structure makes it far less likely to revert to a virulent, disease-causing form. This stabilization drastically lowers the risk of the vaccine virus mutating into new cVDPV2 strains, making it a vital asset for global polio eradication campaigns.

9. Consider the following statements with regard to the Nipah virus (NiV):

1. The primary natural evolutionary reservoir for the virus is fruit bats belonging to the Pteropus genus, commonly referred to as flying foxes.
2. In infected human hosts, the clinical progression is characterized by a low case fatality rate of under 5%, typically presenting with simple localized skin rashes.
3. Due to its potential to trigger catastrophic public health emergencies and the lack of specific approved antivirals, it is designated as a priority pathogen under the WHO R&D Blueprint.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (c)

Explanation

- **Statements 1 and 3 are correct:** Nipah virus (NiV) is a highly lethal zoonotic Henipavirus. Fruit bats of the Pteropus genus serve as its natural reservoir. Humans can contract the virus through exposure to bat-contaminated food products (such as raw date-palm sap or bitten fruits), contact with intermediate animal hosts like infected pigs, or via direct human-to-human respiratory droplets. Because there are no approved antiviral drugs or vaccines, supportive care is the only clinical option. Consequently, the WHO has placed NiV on its R&D Blueprint to fast-track scientific research.
- **Statement 2 is incorrect:** The Nipah virus is exceptionally severe, with an extremely high case fatality rate ranging between 40% and 75%. Its clinical presentation involves acute, life-threatening neurological and respiratory distress, often progressing rapidly from dizziness and disorientation to severe encephalitis, seizures, and coma within 24 to 48 hours.

10. Consider the following statements regarding the features and classification of the Hepatitis D virus (HDV):

1. It is a sub-viral satellite pathogen that is structurally incapable of replicating independently, requiring the active presence of the Hepatitis B virus (HBV) to complete its lifecycle.
2. The International Agency for Research on Cancer (IARC) has officially classified HDV as a Group 1 carcinogen, confirming it as a proven cause of liver cancer in humans.
3. Epidemiological data indicates that HDV affects nearly 85% of all chronic Hepatitis B carriers globally, showing its highest concentration in Western Europe.
4. There is a highly effective, HDV-specific preventive vaccine available globally that eliminates the need for standard Hepatitis B immunizations.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 3 and 4 only
- (c) 1, 2 and 4
- (d) 2 and 3 only

Correct Answer: (a)

Explanation

- **Statements 1 and 2 are correct:** Hepatitis D (HDV) is a blood-borne virus that hijacks the surface antigens of the Hepatitis B virus (HBV) to package and replicate its own viral particles. It occurs either as a simultaneous co-infection or as a superinfection in individuals who already have chronic HBV. The WHO and IARC have classified HDV as a Group 1 human carcinogen because it accelerates liver damage. HDV superinfections increase the risk of developing hepatocellular carcinoma (liver cancer) by 2 to 6 times compared to HBV infections alone, and up to 75% of infected individuals develop liver cirrhosis within 15 years.
- **Statement 3 is incorrect:** HDV does not affect 85% of HBV carriers; rather, it affects approximately 5% of chronic HBV carriers globally (translating to roughly 12 million people). Its primary regions of high prevalence are located across parts of Asia, Africa, and the Amazon Basin, rather than being concentrated in Western Europe.
- **Statement 4 is incorrect:** There is no specific vaccine designed exclusively to target the Hepatitis D virus. Because HDV relies entirely on HBV to cause infection, the standard Hepatitis B vaccine serves as the primary and only preventive defense against contracting both viral conditions.

Schemes in News

1. Consider the following statements with regard to the UDAN Scheme:

1. It was launched under the National Civil Aviation Policy (NCAP) to link remote Tier-2 and Tier-3 hubs via an incentivized framework featuring Viability Gap Funding (VGF) and airfare caps.
2. In its earliest deployment phase (UDAN 1.0), the policy completely prioritized heliports and water aerodromes, introducing mandatory seaplane guidelines before connecting terrestrial runways.
3. The newer iteration, UDAN 5.0, enforces a rigid 600 km mandatory minimum route distance restriction for all operating passenger aircraft, banning short point-to-point regional flights.

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 only
- (d) 1, 2 and 3

Correct Answer: (c)

Detailed Explanation

- **Statement 1 is correct:** The UDAN scheme is a flagship Regional Connectivity Scheme (RCS) designed to democratize aviation by making air travel affordable and accessible. It links remote and regional areas to major economic centers through capped airfares, airport charge waivers, tax concessions on Aviation Turbine Fuel (ATF), and financial support via Viability Gap Funding (VGF).
- **Statement 2 is incorrect:** Strategic extensions to water aerodromes and heliports were introduced much later under the UDAN 5.5 and Seaplane Guidelines (2024) to improve last-mile connectivity, rather than being the exclusive focus of the initial rollout in 2016.
- **Statement 3 is incorrect:** Rather than enforcing a rigid boundary, UDAN 5.0 explicitly removed the 600 km cap on route lengths and prioritized ready-to-operate airports. This change enhanced operational flexibility and expanded the reach of the scheme across diverse geographies.

2. Consider the following statements regarding the features of the Sampoonata Abhiyan 2.0 campaign:

1. It is a mission-mode, time-bound 3-month intensive initiative launched to achieve 100% saturation of key development metrics across selected Aspirational Districts and Aspirational Blocks.
2. The operational monitoring of Key Performance Indicators (KPIs) calculates three educational metrics tracked on an annual verification timeline.
3. At the Aspirational Block level, performance tracking includes evaluating real-time childhood growth measurement efficiency and bovine vaccinations against Foot and Mouth Disease (FMD).
4. Tuberculosis (TB) case notification rates across both public and private health sectors serve as a primary Key Performance Indicator tracked at the Aspirational District level.

Which of the statements given above are correct?

- (a) 1 and 3 only
- (b) 2 and 4 only
- (c) 1, 3 and 4
- (d) 1 and 4 only

Correct Answer: (c)

Detailed Explanation

- **Statements 1, 3, and 4 are correct:** Sampoonata Abhiyan 2.0 is an intensive campaign targeting 112 Aspirational Districts and 513 Aspirational Blocks by NITI Aayog. It aims to achieve complete saturation of crucial social goals. Block-level tracking focuses on 6 KPIs: supplementary nutrition, measurement efficiency at Anganwadis, sanitation, clean drinking water, girls' school toilets, and FMD vaccinations for bovine livestock. District-level tracking focuses on 5 KPIs: newborn birth weight, public/private TB case notification rates, health outreach events (VHSND/UHSND), school infrastructure, and universal livestock vaccination.
- **Statement 2 is incorrect:** The campaign does not limit its indicators to a three annual metric. Instead, it relies on a broad multi-sectoral matrix of 6 Block KPIs and 5 District KPIs, which are monitored via monthly tracking to drive performance and healthy competition.

3. Consider the following statements regarding the features of the PM SHRI scheme:

1. It is a Centrally Sponsored Scheme introduced to upgrade designated schools into model institutions showcasing the holistic and experiential learning tenets of the National Education Policy (NEP) 2020.
2. The infrastructure framework emphasizes eco-friendly campus environments by mandating green initiatives such as solar power integration, rainwater harvesting, and waste management.

3. For North-Eastern and Himalayan States, along with the Union Territory of Jammu & Kashmir, the core project funding pattern is split between the Centre and States in a 60:40 ratio.
4. The selection mechanism adopts a competitive, challenge-mode process utilizing data from the Unified District Information System for Education Plus (UDISE+) alongside field verification.

Which of the statements given above are correct?

- (a) 1 and 3 only
- (b) 1, 2 and 4
- (c) 2 and 4 only
- (d) 1, 2, 3 and 4

Correct Answer: (b)

Detailed Explanation

- **Statements 1, 2, and 4 are correct:** The PM SHRI scheme upgrades existing schools to serve as "lighthouse institutions" that demonstrate NEP 2020 principles. These schools implement smart classrooms, skills labs, inquiry-driven pedagogy, and holistic assessments. They also prioritize sustainability through green campus initiatives like solar arrays and rainwater harvesting systems. Selection uses a challenge-based framework that factors in UDISE+ data and field validation.
- **Statement 3 is incorrect:** The 60:40 funding ratio applies to general states and UTs with legislatures. For North-Eastern and Himalayan States, as well as Jammu & Kashmir, the financial sharing pattern is set at 90:10 (with 100% central funding reserved for UTs without a legislature).

4. Consider the following statements regarding the features of the AMRIT Pharmacy initiative:

1. It functions under the administrative oversight of the Ministry of Health & Family Welfare to supply critical implants, oncology drugs, and life-saving consumables at discounted rates.
2. The nationwide operational implementation and supply-chain logistics of the retail outlets are managed by HLL Lifecare Limited, a Central Public Sector Enterprise (CPSE).
3. The network architecture requires all storefront operations to be staffed by, seasonal volunteers with no compulsion of having formal pharmacological degrees.
4. The initiative features modern digital upgrades, including the launch of the AMRIT ITes Eco-Green Version 2.0 platform to support transparency and operational efficiency.

Which of the statements given above are correct?

- (a) 1 and 3 only
- (b) 2 and 4 only
- (c) 1, 2 and 4
- (d) 1 and 4 only

Correct Answer: (c)

Detailed Explanation

- **Statements 1, 2, and 4 are correct:** Launched in 2015, the AMRIT pharmacy initiative reduces out-of-pocket health expenses by offering 50–90% discounts on essential medicines, cardiac implants, and cancer treatments. Managed by HLL Lifecare Limited under the MoHFW, the network is expanding its footprint to medical colleges and district hospitals. It incorporates tech-driven features like the AMRIT ITes Eco-Green Version 2.0 system, a 24x7 National Contact Centre, and mobile pharmacy vans for rural outreach.
- **Statement 3 is incorrect:** To maintain safety, inventory accuracy, and clinical quality standards, the program exclusively employs certified pharmacy professionals holding formal degrees (D.Pharm or B.Pharm), rather than relying on uncertified volunteers.

5. Consider the following statements with regard to the Niveshak Shivir initiative:

1. It is a nationwide investor assistance program designed to help shareholders easily recover unclaimed dividends and shares from the Investor Education and Protection Fund Authority (IEPFA).
2. The scheme was established by the Investor Education and Protection Fund Authority (IEPFA) in joint collaboration with the Securities and Exchange Board of India (SEBI).
3. The IEPFA operates as a non-statutory private trust that is independent of the administrative jurisdiction of the Ministry of Corporate Affairs.

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 only
- (d) 1, 2 and 3

Correct Answer: (a)

Detailed Explanation

- **Statements 1 and 2 are correct:** The Niveshak Shivir initiative is an investor outreach program run by the IEPFA and SEBI. It sets up on-ground helpdesks to connect shareholders with company registries and provides an online portal to search asset status and file digital recovery claims using Form IEPF-5.
- **Statement 3 is incorrect:** The IEPFA is not a private trust. It is a statutory authority established under Section 125 of the Companies Act, 2013, and it functions under the Ministry of Corporate Affairs, Government of India. It manages the IEPF corpus, protects investor interests, and promotes financial literacy.

6. Consider the following statements with regard to the Production Linked Incentive (PLI) Scheme for Advanced Chemistry Cell (ACC):

1. It is a central sector incentive program managed by the Meity to build domestic manufacturing capacity for advanced battery cells used in electric vehicles and energy grids.
2. The policy framework focuses its output-based financial subsidies only for lithium-ion technologies.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (c)

Detailed Explanation

- **Statement 1 is incorrect:** The ACC-PLI scheme has a financial outlay of ₹18,100 crore. It aims to set up 50 GWh of domestic advanced chemistry cell manufacturing capacity, which helps reduce dependence on imported battery materials. The performance-linked incentives require a minimum investment of ₹1,100 crore from manufacturers to ensure large-scale development.
- **Statement 2 is incorrect:** The scheme is designed to capture next-generation energy technologies, focusing on Advanced Chemistry Cells like lithium-ion batteries while explicitly excluding conventional lead-acid architectures. The policy also features a strict localization mandate, requiring manufacturers to hit a 25% domestic value addition within 2 years and scale it up to 60% within 5 years.

7. Which of the following statements regarding the features of the e-Jagriti platform are correct?

1. It is a unified, AI-enabled digital portal designed to integrate all consumer dispute-resolution systems into a single paperless architecture.
2. It provides global accessibility features allowing Indian citizens living abroad to securely file claims and participate in remote hearings.
3. The platform features an AI-powered, multilingual interface that incorporates automated smart case routing and voice-to-text tools.
4. Its automated communication infrastructure distributes integrated SMS and email alerts for real-time case updates, notice issuances, and deadlines.

Select the correct answer using the options below:

- (a) 1 and 3 only
- (b) 2 and 4 only
- (c) 1, 2 and 4 only
- (d) 1, 2, 3 and 4

Correct Answer: (d)

Detailed Explanation

- **Statements 1, 2, 3, and 4 are correct:** The e-Jagriti platform, developed by the Department of Consumer Affairs, modernizes consumer justice in India. It offers a unified portal for e-filing, electronic notices, virtual hearings, and secure role-based dashboards.
- Non-Resident Indians (NRIs) can file, track, and join hearings remotely using secure OTP logins and encrypted document transfers. The system uses AI for multilingual chat assistance, accessibility tools for visually impaired or elderly users, and automated case routing. This configuration has helped clear backlogs, allowing case completions to outpace new filings in several states. It also includes automated SMS/email alerts and integrates with PayGov and Bharat Kosh for secure fee transactions.

8. Consider the following statements with regard to the TALASH initiative:

1. It is a dedicated national digital platform introduced under the nodal administration of the Ministry of Education to train civil engineers in urban grid infrastructure.
2. The platform incorporates specialized psychometric testing models based on NCERT's Tamanna framework to generate personalized student Career Cards.
3. The scheme was launched by the National Education Society for Tribal Students (NESTS) in collaboration with UNICEF India to guide students across Eklavya Model Residential Schools (EMRS).

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 3 only
- (d) 1, 2 and 3

Correct Answer: (b)

Detailed Explanation

- **Statements 2 and 3 are correct:** TALASH is a national-level digital initiative focused on the development of tribal students. Launched by NESTS and UNICEF India under the Ministry of Tribal Affairs, it helps students build self-awareness, emotional intelligence, conflict resolution, and resilience. The platform utilizes psychometric tools based on NCERT's Tamanna model to generate personalized Career Cards that align a student's skills, interests, and goals. It also includes a teacher training portal to help educators mentor students through phased national deployments.

- **Statement 1 is incorrect:** TALASH is administered by the Ministry of Tribal Affairs. Its objective is to support the life skills, aptitude mapping, and holistic career planning of tribal students, rather than training urban grid infrastructure engineers.

9. Consider the following statements with regard to the Village Defence Guards (VDGs) in Jammu & Kashmir:

1. They function under the direct operational control of the District SSP/SP, serving as a localized force multiplier to assist security forces in counter-terrorism and village protection.
2. In contrast to the older Village Defence Committees (VDCs), the revised VDG framework includes monthly remuneration for both group heads and regular guard members.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (c)

Detailed Explanation

- **Statements 1 and 2 are correct:** Approved by the Ministry of Home Affairs (MHA), the Village Defence Guards (VDGs) restructured the older 1995 Village Defence Committees (VDCs). Organized at the panchayat level with up to 15 members per group, they consist primarily of ex-servicemen and trained civilians. They undergo training by the Army and CRPF and are equipped with Self-Loading Rifles (SLRs).
- The units operate under the direction of the District SSP/SP to integrate with local security forces. Unlike the older VDC structure where only Special Police Officers (SPOs) received payment, the updated VDG system pays both group heads (₹4,500/month) and active members (₹4,000/month) for tasks like conducting night patrols and protecting local infrastructure.

10. Consider the following statements with regard to the Employee's Enrolment Scheme 2025:

1. It is a one-time compliance window launched by the Employees' Provident Fund Organisation (EPFO) to allow employers to voluntarily register eligible employees who were previously left out of coverage.
2. The compliance window provides a open-ended operational timeline extending for a minimum of one years.
3. Under the voluntary terms of the scheme, employers are exempted from paying any share of financial contributions, transferring the entire penalty burden onto the unregistered worker.

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 only
- (d) 1, 2 and 3

Correct Answer: (c)

Detailed Explanation

- **Statement 1 is correct:** The Employee's Enrolment Scheme 2025 is a dedicated voluntary compliance window introduced by the EPFO under the Ministry of Labour and Employment. It allows establishments to register eligible workers who missed out on EPF coverage between July 2017 and October 2025, expanding social security protections under the EPF Act, 1952. The window applies

even to businesses currently under active inquiry under Section 7A or Paragraph 26B, and the EPFO will not launch *suo motu* retroactive actions for past omissions once an employer complies voluntarily.

- **Statement 2 is incorrect:** The scheme is a time-bound, one-time facility with a six-month operational window spanning from 1 November 2025 to 30 April 2026, rather than being an open-ended program.
- **Statement 3 is incorrect:** The framework waives the employee's past contribution share if it wasn't deducted at the time. To settle the account, the employer must provide their own contribution share along with a nominal ₹100 compliance penalty, protecting the unregistered worker from back-payment burdens.

Schemes in News - I

1. Consider the following statements regarding the Prime Minister Street Vendor's Atmanirbhar Nidhi (PM SVANidhi) scheme:

1. It is a Central Sector Scheme launched by the Ministry of Housing and Urban Affairs (MoHUA).
2. The loan structure offers a collateral-free first tranche working capital loan up to ₹50,000.
3. The geographic coverage of the scheme is strictly restricted to street vendors operating within statutory towns.
4. The framework includes an interest subsidy of 7% per annum on timely or early repayment of the loan.

Which of the statements given above are correct?

- (a) 1 and 3
- (b) 2 and 4 only
- (c) 1 and 4 only
- (d) 1, 2 and 4

Correct Answer: (c)

Detailed Explanation

- **Statements 1 and 4 are correct:** PM SVANidhi was introduced as a Central Sector Scheme under the Ministry of Housing and Urban Affairs (MoHUA) to provide collateral-free working capital loans to street vendors. It incentivizes credit discipline with a 7% per annum interest subsidy on timely repayments and offers cashback incentives up to ₹1,600 annually for digital transactions. Its operational period has been extended until March 31, 2030.
- **Statement 2 is incorrect:** Under the enhanced guidelines, the collateral-free loan amounts are scaled progressively across three tranches: the 1st tranche is ₹15,000 (up from ₹10,000), the 2nd tranche is ₹25,000 (up from ₹20,000), and only the 3rd tranche allows up to ₹50,000.
- **Statement 3 is incorrect:** The spatial applicability has been expanded beyond statutory towns to explicitly include vendors in census towns and peri-urban/rural areas, removing the strict urban constraint.

2. Consider the following statements regarding the Electronics Components Manufacturing Scheme (ECMS):

1. It is a flagship initiative implemented by the Meity and Ministry of Heavy Industries to promote domestic manufacturing.
2. The scheme utilizes a total financial outlay of ₹22,919 crore approved by the Union Cabinet in 2024.
3. The incentive structure provides a turnover-linked incentive for 6 years and a capital expenditure (capex) incentive for 5 years.

Which of the statements given above is/are correct?

- (a) 1 and 2 only

- (b) 2 and 3 only
- (c) 3 only
- (d) 1, 2 and 3

Correct Answer: (b)

Detailed Explanation

- **Statements 2 and 3 are correct:** Approved in 2024 with a total financial allocation of ₹22,919 crore, ECMS addresses cost disabilities via hybrid fiscal mechanisms. It provides a turnover-linked incentive spanning 6 years (inclusive of a 1-year gestation window) and a capital expenditure (capex) incentive for 5 years. It targets critical components like Printed Circuit Boards (PCBs), Camera Modules, and Copper-Clad Laminates to reduce import reliance.
- **Statement 1 is incorrect:** The scheme is implemented by the Ministry of Electronics and Information Technology (MeitY) alone.

3. Consider the following statements regarding the Scheme SITAA:

1. It is an innovation-driven collaboration program launched by the Unique Identification Authority of India (UIDAI).
2. It operates under the statutory administration of the Ministry of Home Affairs.
3. The scheme focuses on R&D in biometric, Artificial Intelligence (AI), and cybersecurity solutions.
4. It includes dedicated innovation challenges for Face Liveness Detection and Presentation Attack Detection (PAD).

Which of the statements given above are correct?

- (a) 1, 2 and 3
- (b) 1, 3 and 4
- (c) 2 and 4 only
- (d) 1 and 3 only

Correct Answer: (b)

Detailed Explanation

- **Statements 1, 3, and 4 are correct:** SITAA is a specialized collaboration initiative launched by UIDAI to unite startups, academia, and industry partners to counter deepfakes and spoofing threats. It leverages three specific innovation challenges: Face Liveness Detection, Presentation Attack Detection (PAD), and Contactless Fingerprint Authentication through everyday mobile devices to reinforce digital public infrastructure.
- **Statement 2 is incorrect:** UIDAI and its associated developmental innovations operate under the administrative domain of the Ministry of Electronics and Information Technology (MeitY).

4. Consider the following statements regarding the Strategic Interventions for Green Hydrogen Transition (SIGHT) Scheme:

1. It functions as a flagship financial incentive component under the National Green Hydrogen Mission.
2. The program is jointly implemented by the Ministry of New and Renewable Energy (MNRE) and the Ministry of Petroleum and Natural Gas (MoPNG).
3. The allocated financial outlay under the SIGHT scheme is set at a fixed sum of ₹5,000 crore out of the total mission budget.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only

(d) 1, 2 and 3

Correct Answer: (a)

Detailed Explanation

- **Statements 1 and 2 are correct:** The SIGHT scheme is a major market-catalyzing component under the National Green Hydrogen Mission, implemented through joint efforts by MNRE and MoPNG. It features multiple bidding avenues (Modes 1, 2A, and 2B) utilizing reverse auctions executed by the Solar Energy Corporation of India (SECI) and Oil Public Sector Undertakings (PSUs) to make green hydrogen cost-competitive with fossil fuels.
- **Statement 3 is incorrect:** The scheme commands a massive share of the clean energy transition budget, with an allocation of ₹17,490 crore out of the total ₹19,744 crore earmarked for the National Green Hydrogen Mission.

5. Consider the following statements regarding the Apna Ghar Initiative:

1. It is a highway-based resting infrastructure scheme for truck drivers launched in 2025 by the Ministry of Road Transport and Highways.
2. The infrastructure centers are built, operated, and managed at fuel retail stations by Public Sector Oil Marketing Companies (OMCs).

Which of the statements given above is/are correct?

- (a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

Correct Answer: (b)

Detailed Explanation

- **Statement 2 is correct:** The Apna Ghar program addresses commercial vehicle driver fatigue and highway safety by providing operational rest houses equipped with beds, clean toilets, bathing areas (Houdas), dining spaces, and purified drinking water. These facilities are deployed and managed at fuel retail outlets on national and state highways by public sector Oil Marketing Companies (OMCs). It includes the 'Apna Ghar' mobile application for bookings and feedback analytics.
- **Statement 1 is incorrect:** The initiative was launched under the administrative control of the Ministry of Petroleum and Natural Gas.

6. Consider the following statements regarding the Jal Sanchay Jan Bhagidari (JSJB) Awards:

1. The awards are instituted by the Department of Water Resources, River Development & Ganga Rejuvenation under the Ministry of Jal Shakti.
2. The initiative operates as a component under the urban-centric Amrut 2.0 mission to eliminate rural water storage structures.
3. The evaluation parameters focus on public-private community participation guided by the 3Cs mantra: Community, CSR, and Cost.

Which of the statements given above are correct?

- (a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

Correct Answer: (c)

Detailed Explanation

- **Statements 1 and 3 are correct:** Originally rooted in water management frameworks established in 2018, the community-driven JSJB awards recognize outstanding grassroots water stewardship under the Jal Shakti Abhiyan: Catch the Rain campaign. It prioritizes the 3Cs strategy (Community, CSR, and Cost) to construct and maintain artificial recharge and storage assets, encouraging districts to set up targeted water structures.
- **Statement 2 is incorrect:** Far from eliminating rural structures or being restricted to urban pockets, the initiative promotes nationwide water security by collaborating with both rural panchayats and urban local bodies to fund groundwater recharge grids.

7. Consider the following statements regarding the Cohort Connect 2025 platform:

1. It is a nationwide scientific initiative launched under the Phenome India program by the Ministry of Science & Technology.
2. The primary aim of the platform is the immediate eradication of vectors responsible for acute tropical malaria transmission in urban slums.
3. The initiative aggregates India's major longitudinal cohort studies to explore genetic, lifestyle, and environmental influences on non-communicable diseases (NCDs).

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (c)

Detailed Explanation

- **Statements 1 and 3 are correct:** Launched at CSIR-IMMT Bhubaneswar, Cohort Connect 2025 is a nationwide scientific coordination body under the Ministry of Science & Technology. It brings together major longitudinal health studies to build a comprehensive genetic and clinical dataset tailored to India's population diversity. This supports precision medicine, disease prediction, and therapeutic mapping for metabolic and chronic conditions (such as diabetes, cancer, and the diabetes-TB co-infection link).
- **Statement 2 is incorrect:** The platform is focused on chronic, non-communicable diseases (NCDs) and long-term population health patterns through advanced genomic sequencing, not immediate vector eradication or urban pest control campaigns.

8. Consider the following statements regarding the Market Access Support (MAS) Intervention:

1. It is implemented as an operational sub-scheme under the NIRYAT DISHA component of the Export Promotion Mission (EPM).
2. The program is administered by the Ministry of MSME, Ministry of MSME and Ministry of External Affairs.
3. The framework mandates a strict minimum of 35% participation from Micro, Small, and Medium Enterprises (MSMEs) in supported international trade events.
4. The initiative offers partial airfare assistance specifically for exporters whose business turnover does not exceed ₹75 lakh.

Which of the statements given above are correct?

- (a) 1 and 2
- (b) 3 and 4 only
- (c) 1, 3 and 4
- (d) 1 and 3 only

Correct Answer: (c)

Detailed Explanation

- **Statements 1, 3, and 4 are correct:** The MAS Intervention provides financial and institutional backing to expand global footprint opportunities for Indian exporters. It offers rolling calendars for trade fairs, data-driven outcome tracking via trade.gov.in, and specific financial rationalization caps. This includes airfare support for small businesses and a mandatory 35% minimum reservation for MSMEs to ensure inclusion.
- **Statement 2 is incorrect:** The intervention is jointly implemented by the Department of Commerce (Ministry of Commerce and Industry), the Ministry of MSME, and the Ministry of Finance.

9. Consider the following statements with regard to the Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY):

1. It provides auto-renewable, one-year term life insurance coverage of ₹2 lakh payable on death resulting from any cause.
2. The scheme is open to all individual bank or post office account holders within the specific age bracket of 18 to 70 years.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Detailed Explanation

- **Statement 1 is correct:** PMJJBY is one of the three flagship Jan Suraksha schemes providing low-cost insurance. It offers a ₹2 lakh term life insurance payout for death due to any cause, operating on a fixed annual cycle from June 1 to May 31 with a premium of ₹436 per annum, implemented via life insurers and banking partners.
- **Statement 2 is incorrect:** The eligible age window for PMJJBY is strictly 18 to 50 years (with risk cover extending up to 55 years subject to regular premium payouts). The 18 to 70 age bracket applies to its accident insurance counterpart, the Pradhan Mantri Suraksha Bima Yojana (PMSBY).

10. Consider the following statements regarding the ADEETIE:

1. It is a clean energy adoption initiative launched by the Union Ministry of Power.
2. The field implementation of the technological framework is executed by the Bureau of Energy Efficiency (BEE).
3. The financial mechanism relies on a fixed interest subvention of 15% across all large-scale multinational conglomerates.
4. The initiative utilizes a cluster-based rollout model targeting identified industrial clusters across successive phases.

Which of the statements given above are correct?

- (a) 1 and 3
- (b) 2 and 4 only
- (c) 1, 2 and 4
- (d) 1 and 2 only

Correct Answer: (c)

Detailed Explanation

- **Statements 1, 2, and 4 are correct:** The ADEETIE scheme scales up low-carbon industrial growth over a multi-year budget layout (FY 2025–26 to FY 2027–28). Implemented by BEE, it provides technical handholding like investment-grade energy audits (IGEA) and digital monitoring portals. It deploys its solutions through an organized cluster-based strategy, beginning with Phase I (60 clusters) and expanding into Phase II (100 additional clusters).
- **Statement 3 is incorrect:** The fiscal interest subvention is designed to support smaller enterprises, offering a 5% subvention for Micro and Small Enterprises and 3% for Medium Enterprises (MSMEs), rather than a 15% rate for large multinational corporations.

Schemes in News - II

1. Consider the following statements regarding the Khelo India ASMITA initiative:

1. It functions as a dedicated sports program under the nodal administration of the Ministry of Women and Child Development.
2. The inaugural edition of the initiative featured a competitive football league launched in Jalgaon, Maharashtra during the 2025–26 cycle.
3. The core operational mandate of the program targets elite, senior international women athletes preparing for Olympic qualification tournaments.
4. The initiative is structured to foster social inclusion by identifying and nurturing grassroots talent from rural, tribal, and minority backgrounds.

Which of the statements given above are correct?

- (a) 1 and 3
- (b) 2 and 4 only
- (c) 1, 2 and 4
- (d) 1 and 4 only

Correct Answer: (b)

Detailed Explanation

- **Statements 2 and 4 are correct:** The Khelo India ASMITA initiative was introduced during the 2025–26 cycle with its inaugural competitive football league hosted in Jalgaon, Maharashtra. It explicitly incorporates affirmative action to build an inclusive sports network, targeting underserved communities such as tribal, rural, and minority populations to address historical gender imbalances in athletics.
- **Statement 1 is incorrect:** The initiative is administered under the nodal jurisdiction of the Ministry of Youth Affairs and Sports, with active operational support from the Sports Authority of India (SAI) and respective national sports federations.
- **Statement 3 is incorrect:** The scheme does not target elite senior international competitors. Instead, its specific mandate is focused on grassroots talent development, explicitly targeting young girls aged 13 and under, including first-time and hidden regional players.

2. Consider the following statements regarding the UMEED platform:

1. It is a centralized digital repository introduced by the Ministry of Minority Affairs to manage, verify, and regulate Waqf properties across India.
2. Any unregistered properties remaining after a mandatory 6-month deadline are automatically transferred to the Ministry of Culture for commercial auction.

3. The newly integrated digital application module for the Waqf-alal-aulad endowment relies on biometric verification to manage DBT to beneficiaries.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (c)

Detailed Explanation

- **Statements 1 and 3 are correct:** The UMEED portal is a centralized digital solution managed by the Ministry of Minority Affairs alongside State Waqf Boards. To streamline the special category of Waqf-alal-aulad endowments—which support widows, divorced women, and orphans—the platform integrates a tracking module featuring secure beneficiary authentication and an online approval framework to enable seamless Direct Benefit Transfers (DBT) into checked bank accounts.
- **Statement 2 is incorrect:** If a Waqf property remains unregistered after the mandatory 6-month window, the statutory guidelines state that the property is declared a disputed asset and referred directly to the designated Waqf Tribunal for judicial resolution, rather than being routed to the Ministry of Culture for asset auctions.

3. Consider the following statements regarding the Panchayat Assistance and Messaging Chatbot (PANCHAM):

- 1. It is a WhatsApp-based AI digital companion developed by the Ministry of Panchayati Raj in collaboration with UNICEF.
- 2. The operational framework requires users to download a mobile application to access information.
- 3. Backed by the AI-powered BHASHINI translation engine, the tool possesses a multilingual communication capability across 22 official Indian languages.
- 4. The system relies entirely on text-based queries, prohibiting any voice-note interactions due to audio security restrictions.

Which of the statements given above are correct?

- (a) 1 and 3
- (b) 2 and 4 only
- (c) 1, 2 and 4
- (d) 1 and 4 only

Correct Answer: (a)

Detailed Explanation

- **Statements 1 and 3 are correct:** PANCHAM is an AI tool launched by the Ministry of Panchayati Raj in knowledge partnership with UNICEF. It links village decision-makers directly with central databases. By using the national AI-powered BHASHINI translation engine, it supports real-time interaction across 22 official regional languages to promote information access at the grassroots level.
- **Statement 2 is incorrect:** PANCHAM integrates directly into the existing WhatsApp platform. Village representatives simply scan a QR code or save the official number to operate the tool, eliminating the need to install standalone, high-storage mobile applications.
- **Statement 4 is incorrect:** To bridge literacy barriers, the tool supports voice-based inputs and outputs. Users can submit verbal voice notes in their regional dialects, and the chatbot processes the query to return an acoustic response alongside small educational video modules.

4. Consider the following statements with regard to the Nasha Mukh Bharat Abhiyaan (NMBA):

1. It is a targeted, nationwide substance-demand reduction campaign administered under the Ministry of Health and Family Welfare.
2. The institutional rollout focuses on high-risk zones, utilizing an index of 272 vulnerable districts mapped through national surveys and Narcotics Control Bureau (NCB) data.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (b)

Detailed Explanation

- **Statement 2 is correct:** The NMBA campaign focuses its mass mobilization strategies on 272 high-risk vulnerable districts across India, identified via data-driven metrics compiled through nationwide drug mapping and Narcotics Control Bureau (NCB) analytics.
- **Statement 1 is incorrect:** The NMBA initiative is administered under the nodal oversight of the Ministry of Social Justice & Empowerment (MoSJE), which manages demand reduction, public sensitization, and rehabilitation, while collaborating with the Ministry of Home Affairs (NCB) for supply reduction and the Health Department for clinical detoxification treatments.

5. Consider the following statements with regard to the features of the Sanchar Saathi application ecosystem:

1. It is an integrated citizen-centric telecom security platform developed by the Department of Telecommunications (DoT).
2. The platform features the Chakshu module, which enables real-time reporting of fraudulent connections, fake KYC alerts, and suspicious communication links.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (c)

Detailed Explanation

- **Statements 1 and 2 are correct:** Sanchar Saathi is a digital citizen protection ecosystem launched by the Department of Telecommunications (DoT). Its tools allow mobile users to audit the number of active connections tied to their identities, report unauthorized connections, block lost or stolen mobile equipment using IMEI locks, and track international spoofing calls masked as domestic lines. Its specialized Chakshu sub-tool acts as a reporting gateway for users to flag incoming phishing attempts, false KYC updation threats, and malicious application download files.

6. Consider the following statements regarding the Haat on Wheels initiative:

1. It is a mobile, retail direct-to-consumer platform introduced to promote indigenous handloom heritage across urban zones.
2. The administrative execution of the campaign is overseen by the Ministry of MSME in collaboration with the Khadi and Village Industries Commission (KVIC).

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Detailed Explanation

- **Statement 1 is correct:** The Haat on Wheels initiative is an urban-facing mobile commerce platform built around the theme "My Handloom, My Pride; My Product, My Pride". It utilizes a direct-to-consumer fleet of customized mobile vans traveling through commercial corridors to showcase and market over 116 regional weaves from different parts of India, linking weavers directly with customers.
- **Statement 2 is incorrect:** The initiative is administered under the Ministry of Textiles, and implemented in institutional partnership with the National Handloom Development Corporation (NHDC), not the Ministry of MSME or KVIC.

7. Consider the following statements regarding the Pradhan Mantri Gram Sadak Yojana (PMGSY):

1. It is a Central Sector Scheme designed to establish all-weather road connectivity to eligible unconnected rural habitations.
2. The initiative completed 25 years of operational deployment in December 2025.
3. The latest iteration, PMGSY-IV (2024–29), focuses on providing road access to 25,000 eligible habitations via 62,500 km of new or upgraded links.
4. The program's quality verification model relies on a strict, internal single-tier departmental check to prevent third-party independent audits.

Which of the statements given above are correct?

- (a) 1 and 3
- (b) 2 and 4 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

Correct Answer: (c)

Detailed Explanation

- **Statements 2 and 3 are correct:** PMGSY reached its 25-year milestone in December 2025, since its launch on December 25, 2000. The updated PMGSY-IV block (2024–29) plans to extend road layouts by 62,500 km to connect approximately 25,000 remote rural habitations. The scheme incorporates green building technologies, including the use of fly ash, waste plastic geotextiles, and bio-bitumen.
- **Statement 1 is incorrect:** PMGSY is structurally configured as a Centrally Sponsored Scheme, where project construction costs are shared between the Central Government and State Governments, rather than being an entirely funded Central Sector Scheme.
- **Statement 4 is incorrect:** To ensure long-term durability and structural standards, the program features an institutionalized three-tier quality monitoring architecture. This setup combines regular checks by local executing agencies, secondary audits by State Quality Monitors (SQM), and independent field validations by National Quality Monitors (NQM).

8. Consider the following statements regarding the Prime Minister's Scheme for Empowerment through Technology Upgradation (PM-SETU):

1. It is a flagship initiative managed by the Ministry of MSDE to modernize Industrial Training Institutes (ITIs).

2. The financial layout of the scheme requires the Central Government to bear 100% of the expenditure, with state budgets completely exempt from any funding liabilities.
3. The operational infrastructure uses a Hub-and-Spoke framework, configuring 200 hub ITIs that are each interlinked to four designated spoke ITIs.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

Correct Answer: (c)

Detailed Explanation

- **Statements 1 and 3 are correct:** The PM-SETU scheme under MSDE seeks to modernize vocational training into a Government-owned, Industry-managed model. It implements a network model where 200 upgraded ITIs serve as regional hubs for advanced training, R&D, and start-up incubation, with each hub supporting four spoke ITIs across a total network of 1,000 institutions. Industry groups (like CII and FICCI) anchor these clusters to align student skills with job placements.
- **Statement 2 is incorrect:** PM-SETU is a Centrally Sponsored Scheme utilizing a ₹60,000 crore total budget outlay spanning 2025–28. The financial requirements are jointly shared between the Central and State Governments based on standard fiscal allocation formulas, rather than being 100% centrally funded.

9. Consider the following statements regarding the features of the DRAVYA Portal:

1. It is an open-access, AI-ready digital knowledge repository developed by the Central Council for Research in Ayurvedic Sciences (CCRAS) under the Ministry of Ayush.
2. The platform is designed to store classical textbook materials, while blocking modern pharmacological or botanical research data.
3. The system integrates standard QR code features to facilitate real-time retrieval of verified data across plant gardens and drug repositories.
4. To maintain data privacy, the portal is kept isolated from external health databases, preventing any integration with the broader Ayush Grid.

Which of the statements given above are correct?

- (a) 1 and 3
(b) 2 and 4 only
(c) 1, 2 and 4
(d) 1 and 4 only

Correct Answer: (a)

Detailed Explanation

- **Statements 1 and 3 are correct:** The DRAVYA portal is an AI-ready digital platform built by CCRAS under the Ministry of Ayush. It categorizes complex data covering aspects like pharmacotherapeutics, botany, chemical structures, and safety guidelines. It features QR code labels for use in research nurseries and medicinal plant gardens, enabling users to scan and retrieve verified botanical profiles directly on-site.
- **Statement 2 is incorrect:** Far from blocking research data, the platform's core purpose is to bridge traditional classical Ayurvedic texts with modern empirical research, allowing data comparison across botany, chemistry, and clinical pharmacology.

- **Statement 4 is incorrect:** The architecture is designed to interlink with the Ayush Grid, ensuring data interoperability across central health tools and research databases to support cross-disciplinary innovation.

10. Consider the following statements regarding the Shilp Didi Programme:

1. It is an economic empowerment initiative implemented by the Ministry of Textiles through the Office of the Development Commissioner.
2. The program relies on physical brick-and-mortar village marketplaces, without reliance on digital onboarding or e-commerce training.
3. The foundational pilot phase of the initiative targeted a group of 100 women artisans representing diverse handicraft sectors across multiple states.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (c)

Detailed Explanation

- **Statements 1 and 3 are correct:** The Shilp Didi program is a targeted women-centric entrepreneurship campaign under the Ministry of Textiles. Its baseline implementation began with a 100-day pilot focusing on 100 women artisans from 72 districts across 23 states, spanning 30 craft types (including pottery, metal carvings, and traditional embroidery). Capacity building is supported through National Handicrafts Development Programme (NHDP) regional clusters.
- **Statement 2 is incorrect:** The initiative focuses on digital skills and e-commerce training. It provides e-learning modules on regulatory compliance, digital payments, and social media marketing to help women artisans secure online onboarding on global e-commerce platforms alongside access to physical exhibitions like Dilli Haat.

Schemes in News - III

1. Consider the following statements regarding the Aabhar online store:

1. The store is hosted by the Government e-Marketplace (GeM) and showcases items manufactured under the ODOP and Geographical Indication (GI) categories.
2. The promotional hampers and gift articles sourced through this platform are specifically designated for use in official events and ceremonies of the Indian Railways.

Select the answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (c)

Detailed Explanation:

- **Statement 1 is correct:** The 'Aabhar' online store is explicitly hosted on the Government e-Marketplace (GeM) portal. It acts as a dedicated marketplace for handlooms, crafts, and tribal artisan goods under the ODOP and GI tags, promoting the national Vocal for Local initiative.

- **Statement 2 is correct:** As per the official guidelines, the specific commercial objective of this integration is to provide reliable market access to rural entrepreneurs, indigenous tribes, and women-led enterprises by utilizing these curated gift articles exclusively during official functions, events, and ceremonies of the Indian Railways.

2. Consider the following statements regarding the 'Mera Gaon Meri Dharohar' (MGMD) Initiative:

1. It is a nationwide cultural mapping project launched in June 2023 under the Azadi Ka Amrit Mahotsav celebrations.
2. The operational execution of the project is managed by the Archaeological Survey of India (ASI) as the core implementing agency.
3. The National Mission on Cultural Mapping (NMCM), which supervises this initiative, was established under the administrative control of the Ministry of Tourism.
4. The web portal developed under MGMD functions as the National Cultural Workplace (NCWP), featuring 360-degree video documentations and user-editable data.

Which of the statements given above are correct?

- (a) 1 and 3
- (b) 2 and 4 only
- (c) 1, 2 and 4
- (d) 1 and 4 only

Correct Answer: (d)

Detailed Explanation:

- **Statement 1 is correct:** The MGMD initiative was officially introduced in June 2023 as a nationwide comprehensive cultural mapping project to document the intangible cultural heritage across 6.5 lakh Indian villages.
- **Statement 2 is incorrect:** The scheme is implemented by the Indira Gandhi National Centre for the Arts (IGNCA).
- **Statement 3 is incorrect:** The National Mission on Cultural Mapping (NMCM) is a flagship mission under the jurisdiction of the Ministry of Culture, Government of India, rather than the Ministry of Tourism.
- **Statement 4 is correct:** The MGMD portal functions as the National Cultural Workplace (NCWP). It hosts a massive cultural database, provides virtual living museums, issues unique artist registrations, and features 360° video profiles of selected villages.

3. Consider the following statements regarding the regulatory framework of Inland Waterway Transport in India:

1. The Inland Waterways Authority of India (IWAI) is a statutory body established in 1986 under the nodal jurisdiction of the Ministry of Ports, Shipping and Waterways.
2. The National Waterways Act of 2016 legally designated exactly 52 inland waterways as National Waterways (NWs) for integrated development.
3. The newly introduced Jalvahak Cargo Promotion Scheme provides financial incentives by reimbursing up to 35% of operating costs to cargo movers using inland waterways.

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 3 only
- (d) 1, 2 and 3

Correct Answer: (b)

Detailed Explanation:

- **Statement 1 is correct:** The IWAI is a statutory organization set up in 1986 under the Inland Waterways Authority of India Act, 1985. It is headquartered in Noida, Uttar Pradesh, and functions under the Ministry of Ports, Shipping and Waterways (MoPSW).
- **Statement 2 is incorrect:** The National Waterways Act, 2016 declared 111 waterways as National Waterways (NWs) across the country to scale up eco-friendly logistics, not 52.
- **Statement 3 is correct:** The Jalvahak Cargo Promotion Scheme (introduced to boost domestic bulk transport) provides a targeted operational cost reimbursement of up to 35% for cargo movers deploying ships, barges, or vessels across these designated networks.

4. Consider the following statements regarding the SHAKTI Scholars Research Fellowship:

1. The initiative is structured as a six-month, grant-based multidisciplinary fellowship launched by the Ministry of Youth Affairs and Sports.
2. The program is strictly restricted to Indian citizens falling within the designated age bracket of 21 to 30 years.
3. Candidates must hold a minimum qualification of a graduation degree from a recognized university to be eligible to apply for the fellowship.
4. The fellowship provides a defined research grant of ₹1 lakh disbursed in a progressive, phased manner linked to research milestones.

Which of the statements given above are correct?

- (a) 1 and 3
- (b) 2 and 4 only
- (c) 1, 2 and 4
- (d) 1 and 4 only

Correct Answer: (b)

Detailed Explanation:

- **Statement 1 is incorrect:** The SHAKTI Scholars Young Research Fellowship is launched and administered directly by the National Commission for Women (NCW).
- **Statement 2 is correct:** The eligibility guidelines explicitly restrict access to Indian citizens aged between 21 and 30 years at the time of application.
- **Statement 3 is incorrect:** The mandatory minimum educational benchmark is Graduation from a recognized institution. While preference is given to individuals pursuing or holding Post-Graduation, M.Phil., or PhD degrees in social sciences, public policy, or law.
- **Statement 4 is correct:** The selected independent researchers receive a total grant of ₹1 lakh to offset costs related to data collection, field verification, and analysis, with funds released in distinct, progress-linked phases to guarantee accountability.

5. Consider the following statements regarding the scheme to promote manufacturing of Sintered Rare Earth Permanent Magnets (REPM):

1. It is a first-of-its-kind national program under the primary nodal administration of the Ministry of Heavy Industries.
2. The strategic framework aims to select exactly 5 manufacturing beneficiaries through a process of global competitive bidding.
3. Out of the total financial outlay of ₹7,280 crore, a major component of ₹6,450 crore is allocated strictly toward sales-linked incentives over a 5-year production cycle.

4. The layout provides a 5-year initial gestation period specifically to construct the integrated processing plants before production metrics are audited.

Which of the statements given above are correct?

- (a) 2 and 3 only
- (b) 1, 2 and 4
- (c) 1 and 3
- (d) 2 and 4 only

Correct Answer: (a)

Detailed Explanation:

- **Statement 1 is incorrect:** The scheme is administered under the nodal jurisdiction of the Ministry of Mines, working with policy oversight from the Department of Atomic Energy (DAE) and NITI Aayog.
- **Statement 2 is correct:** The project targets the selection of 5 enterprise beneficiaries via global competitive bidding, with each setup targeted to achieve up to 1,200 Metric Tonnes Per Annum (MTPA) to construct an integrated domestic supply chain.
- **Statement 3 is correct:** The total fiscal package is ₹7,280 crore. This includes ₹6,450 crore earmarked for output-linked/sales-linked monetary incentives over 5 years, and ₹750 crore allocated as a direct capital subsidy for setting up metallurgical plants.
- **Statement 4 is incorrect:** The implementation timeline permits a 2-year gestation window for plant construction, equipment setup, and processing line stabilization, followed by a 5-year incentive payout phase within a total scheme duration of 7 years.

6. Consider the following statements regarding the Protection of Plant Varieties and Farmers Rights (PPV&FRA) Act-2001:

- 1. It provides India's first *sui generis* legal framework enacted under the primary administrative oversight of the Ministry of Environment, Forest and Climate Change.
- 2. Section 39 of the Act legally empowers farmers to save, use, sow, resow, exchange, and share seeds of any registered plant varieties protected under the law.
- 3. The registration of new plant varieties under this framework requires compliance with the standardized DUS criteria, representing Distinctness, Uniformity, and Stability.

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 3 only
- (d) 1, 2 and 3

Correct Answer: (b)

Detailed Explanation:

- **Statement 1 is incorrect:** The PPV&FRA Act of 2001 operates under the administrative authority of the Ministry of Agriculture & Farmers' Welfare, with the Protection of Plant Varieties and Farmers' Rights Authority fully operational since 2005.
- **Statement 2 is correct:** Section 39 of the Act contains landmark provisions for seed sovereignty, granting Indian farmers the explicit legal right to store, cultivate, re-cultivate, barter, or distribute seeds of protected, registered variations, ensuring they are not penalized by corporate breeders' patents.
- **Statement 3 is correct:** To be certified and entered into the National Register of Plant Varieties, a new plant type must satisfy the globally recognized DUS parameters: Distinctness (clear differentiation

from existing varieties), Uniformity (consistent scale of expression), and Stability (unchanged traits across generations).

7. Consider the following statements regarding the National Action Plan on Antimicrobial Resistance 2.0 (NAP-AMR 2.0):

1. It serves as an updated five-year strategic framework covering the 2025–29 cycle, succeeding the initial national action plan framework.
2. The updated blueprint drops the multi-sectoral One Health methodology to concentrate exclusively on human clinical diagnostic networks.
3. The institutional rollout incorporates decentralized governance, requiring each of the 20+ participating ministries to deploy independent budgets and action plans.
4. Under the regulatory measures of this framework, all States and Union Territories have passed mandatory legislative bans prohibiting any over-the-counter (OTC) sales of general antibiotics.

Which of the statements given above are correct?

- (a) 1 and 3
- (b) 2 and 4 only
- (c) 1, 2 and 4
- (d) 1 and 4 only

Correct Answer: (a)

Detailed Explanation:

- **Statement 1 is correct:** NAP-AMR 2.0 is the official five-year strategy spanning 2025–29, designed by the Union Ministry of Health & Family Welfare to remedy systemic gaps found in the initial 2017–21 deployment block.
- **Statement 2 is incorrect:** It expands on the 'One Health' architecture, intentionally merging human medicine, animal husbandry, crop cultivation, food processing safety, and environmental effluent systems under a singular framework.
- **Statement 3 is correct:** It features ministry-specific integration where more than 20 distinct ministries (such as Ministry of Jal Shakti, DST, MoEFCC, and Ministry of Chemicals) develop their own internal targets, timelines, and budgets.
- **Statement 4 is incorrect:** While the policy strongly advocates for antibiotic stewardship and medical prescription auditing, only specific pioneer states (such as Kerala and Gujarat) have actively executed formal bans on the over-the-counter sale of non-prescribed antibiotics. It is not an across-the-board mandatory state legislative ban.

8. Consider the following statements regarding the PM E-Drive Subsidy Scheme:

1. The program was officially launched on 1 October 2024 by the Ministry of New and Renewable Energy (MNRE).
2. The demand incentive architecture provides a flat rate of ₹5,000 per kWh for electric two-wheelers in FY25, with the maximum cap per vehicle set at ₹10,000.
3. The deployment parameters for electric public transport buses prioritize heavy urban concentration, restricting deployment specifically to 9 cities with populations exceeding 40 lakhs.

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 only
- (d) 1, 2 and 3

Correct Answer: (b)

Detailed Explanation:

- **Statement 1 is incorrect:** The PM E-Drive Scheme is launched and monitored under the administrative jurisdiction of the Ministry of Heavy Industries (MHI), replacing the previous Electric Mobility Promotion Scheme (EMPS-2024).
- **Statement 2 is correct:** The subsidy structure for FY25 sets demand incentives for electric two-wheelers at ₹5,000 per kWh, limiting the maximum absolute incentive to ₹10,000 per vehicle. This subsidy rate is scheduled to be reduced by half in FY26.
- **Statement 3 is correct:** To maximize carbon reduction in heavy urban commuter segments, the procurement and deployment subsidies for zero-emission e-buses are targeted at 9 mega-cities with populations recorded over the 40-lakh threshold.

9. Consider the following statements regarding the Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY):

1. It is a free foodgrain distribution scheme operated under the statutory mandates of the National Food Security Act (NFSA), 2013.
2. The administrative execution of the food distribution network is managed by the Ministry of Rural Development.
3. Under its standard entitlement criteria, Antyodaya Anna Yojana (AAY) households receive 35 kg of foodgrains per family per month, while Priority Households (PHH) receive 5 kg per person per month.
4. The scope of coverage is designed to assist 100% of the rural population and up to 75% of the urban population across India.

Which of the statements given above are correct?

- (a) 1 and 3
- (b) 2 and 4 only
- (c) 1, 2 and 4
- (d) 1 and 4 only

Correct Answer: (a)

Detailed Explanation:

- **Statement 1 is correct:** PMGKAY is a welfare program linked to the legal mechanisms of the National Food Security Act (NFSA), 2013, to provide free foodgrains via the targeted Public Distribution System.
- **Statement 2 is incorrect:** The scheme is administered and implemented by the Ministry of Consumer Affairs, Food and Public Distribution.
- **Statement 3 is correct:** The monthly food allocation divides beneficiaries into two categories: poorest-of-the-poor Antyodaya Anna Yojana (AAY) families receive a fixed 35 kg of grains per family, whereas Priority Households (PHH) are allocated a person-weighted 5 kg of rice/wheat per individual. Since January 2023, these allocations have been made completely free of cost.
- **Statement 4 is incorrect:** The statutory coverage ratios under the NFSA match a specific demographic split: helping up to 75% of the rural population and up to 50% of the urban population.

10. Consider the following statements regarding the National Improvised Explosive Device Data Management System (NIDMS):

1. It is a secure national digital platform that compiles, standardizes, and cross-references historical IED and bomb-blast data under the policy oversight of the Ministry of Home Affairs.
2. The primary operational hosting and custodian responsibilities of this data repository are assigned to the National Security Guard (NSG).

3. The platform serves as a closed-loop internal storage center that is completely isolated from outside networks like the Crime and Criminal Tracking Network & Systems (CCTNS).
4. The system contains a comprehensive historical archive cataloging domestic blast incidents dating back to the year 1947.

Which of the statements given above are correct?

- (a) 1 and 3
- (b) 1 and 2 only
- (c) 1, 2 and 4
- (d) 2 and 4 only

Correct Answer: (b)

Detailed Explanation:

- **Statement 1 is correct:** NIDMS is a secure centralized application platform setup under the policy direction of the Ministry of Home Affairs (MHA) to improve data tracking and analysis for bomb investigators.
- **Statement 2 is correct:** The National Security Guard (NSG)—specifically via its specialized National Bomb Data Centre (NBDC)—serves as the formal institutional host and operational custodian of the platform.
- **Statement 3 is incorrect:** NIDMS is built to be highly interoperable. It is configured to integrate with external national law enforcement databases, including CCTNS, the Inter-operable Criminal Justice System (ICJS-2), NAFIS (fingerprints), and e-Prisons to help identify matching signatures across different attacks.
- **Statement 4 is incorrect:** The digital archive does not go back to 1947. The platform records all detailed technical parameters, circuit designs, and explosive device components for blast incidents documented since 1999.

Schemes in News – III

1. Consider the following statements regarding the Scheme for Promotion of Registration of Employers and Employees (SPREE) 2025:

1. It is a social security formalization initiative launched by the Employees State Insurance Corporation (ESIC) under the Ministry of Finance.
2. The scheme functions as a mandatory enrollment drive that imposes financial contributions and penalties on employers for past unregistered contractual workers.

Select the answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (d)

Explanation:

- **Statement 1 is incorrect:** SPREE 2025 is a dedicated voluntary formalization scheme launched by the Employees' State Insurance Corporation (ESIC), an autonomous body under the Ministry of Labour and Employment, to bring unregistered entities into the formal social security framework.
- **Statement 2 is incorrect:** The primary feature of SPREE 2025 is that it operates as a one-time amnesty scheme with zero retrospective penalties. It specifically mandates that no contribution, inspection, or

legal demand will be raised for the pre-registration period, clearing legal hurdles and fear of litigation for employers who voluntarily register their contractual, temporary, and informal workforces.

2. Consider the following statements regarding the Chips to Start-up (C2S) Programme:

1. The initiative was launched in 2022 under the administrative and implementation framework of the Ministry of Electronics and Information Technology (MeitY).
2. The target metrics focus on developing specialized human resources across various tiers, including PhD, M.Tech, and B.Tech academic levels over a 5-year project cycle.
3. The operational infrastructure for chip design enablement and hardware prototyping is coordinated by the National ChipIN Centre based at C-DAC, Bengaluru.

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 only
- (d) 1, 2 and 3

Correct Answer: (d)

Explanation:

- **Statement 1 is correct:** The C2S Programme is a national capacity-building and innovation blueprint initiated in 2022 by MeitY to strengthen India's indigenous semiconductor design ecosystem and establish technological self-reliance.
- **Statement 2 is correct:** The scheme features precise, non-generic human resource targets over 5 years, aiming to build a talent pipeline consisting of 200 PhDs, 7,000 M.Tech (VLSI), 8,800 M.Tech (related streams), and 69,000 B.Tech students.
- **Statement 3 is correct:** C-DAC Bengaluru operates the National ChipIN Centre under this program, which serves as the centralized node providing centralized access to design tools, shared Electronic Design Automation (EDA) software, and multiproject wafer fabrication facilities via the Semiconductor Laboratory (SCL) at Mohali.

3. Consider the following statements regarding the structural features of the Open Network for Digital Commerce (ONDC):

1. It was launched in April 2022 by the DPIIT under the Ministry of Commerce and Industry.
2. ONDC functions as an open, interoperable, decentralized digital network that does not own product listings, control sellers, or directly process consumer orders.
3. The operational model replaces traditional independent buyer applications with a single, government-owned central e-commerce platform.
4. The transaction framework relies on standardized APIs and open protocols, allowing independent third-party logistics providers to plug directly into the network.

Which of the statements given above are correct?

- (a) 1 and 3
- (b) 2 and 4 only
- (c) 1, 2 and 4
- (d) 1 and 4 only

Correct Answer: (c)

Explanation:

- **Statement 1 is correct:** ONDC was initiated in April 2022 by the DPIIT, Ministry of Commerce and Industry, to democratize digital retail and break down existing platform monopolies.

- **Statement 2 is correct:** ONDC is not a central marketplace or a monolithic platform. It is a decentralized network architecture that provides open protocols and standardized infrastructure for independent actors to interact freely without siloed platform intermediaries.
- **Statement 3 is incorrect:** ONDC does not employ a single, mandatory government platform. Instead, it unbundles e-commerce components so that any independent buyer application, seller application, and service provider can use common rules to discover and transact with each other.
- **Statement 4 is correct:** Because the network is open and built on standardized APIs, specialized entities such as individual logistics providers, hyper-local transport systems, and technology enablers can dynamically plug in to handle delivery, fulfillment, and tracking.

4. Consider the following statements regarding the MY Bharat institutional architecture:

1. MY Bharat is established as an autonomous body under the regulatory oversight of the Ministry of Youth Affairs and Sports.
2. The platform was officially launched on October 31, 2023, coinciding with the birth anniversary of Subhas Chandra Bose.

Select the answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** MY Bharat functions as an autonomous body under the Ministry of Youth Affairs and Sports, providing a technology-driven institutional interface for youth-led transformation and experiential learning.
- **Statement 2 is incorrect:** While the launch date of October 31, 2023, is correct, it was launched on the birth anniversary of Sardar Vallabhbhai Patel (National Unity Day), not Subhas Chandra Bose.

5. Consider the following statements regarding the features of the National Overseas Scholarship Scheme:

1. It is a Central Sponsored Scheme administered by the Ministry of Social Justice and Empowerment for marginalized community students.
2. The eligibility criteria stipulate a strict annual family income ceiling that must not exceed ₹5-lakh.
3. The geographical distribution of seats is regulated by imposing a strict state-wise cap, ensuring no single state receives more than 10% of the total annual slots.
4. The financial funding parameters feature a mandatory gender-based reservation, allocating 30% of the total annual scholarship awards exclusively for women candidates.

Which of the statements given above are correct?

- (a) 1, 3 and 4
- (b) 2 and 4 only
- (c) 1 and 3 only
- (d) 3 and 4

Correct Answer: (d)

Explanation:

- **Statement 1 is incorrect:** The scheme is a fully funded Central Sector Scheme under the Ministry of Social Justice and Empowerment, targeting low-income students from Scheduled Castes,

Denotified/Nomadic Tribes, and landless agricultural households to pursue Master's and PhD programs abroad.

- **Statement 2 is incorrect:** The annual family income eligibility threshold is strictly capped at ₹8 lakh.
- **Statement 3 is correct:** To prevent geographic concentration and ensure equitable pan-India selection, the scheme mandates that no single state can claim more than 10% of the total available slots (125 slots per year) in a given selection block.
- **Statement 4 is correct:** The scheme provides an internal quota mechanism where a minimum of 30% of the total cleared annual scholarship allocations are legally reserved for eligible female candidates.

6. Consider the following statements regarding the Prime Minister's Wi-Fi Access Network Interface (PM-WANI):

1. It is a national public Wi-Fi infrastructure architecture approved by the Union Cabinet and implemented by the Department of Telecommunications (DoT).
2. The system requires small shops and local businesses operating as Public Data Offices (PDOs) to obtain a formal commercial telecom operating license and pay registration fees.

Select the answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** PM-WANI is a public Wi-Fi framework launched by the Department of Telecommunications under the Ministry of Communications to democratize broadband access and accelerate rural-urban digital inclusion.
- **Statement 2 is incorrect:** The hallmark design of PM-WANI is that no license, registration, or formal fee is required for small local businesses or Mom-and-Pop stores acting as Public Data Offices (PDOs). This unbundling lowers entry barriers and allows them to purchase bandwidth and retail it directly to the public without regulatory overhead.

7. Consider the following statements regarding the Deendayal Antyodaya Yojana – National Rural Livelihoods Mission (DAY-NRLM):

1. The mission represents a flagship poverty alleviation and gender empowerment initiative implemented by the Ministry of Social Justice.
2. The financial architecture provides a robust system of delivering collateral-free credit lines to registered Self-Help Groups (SHGs).
3. The institutional delivery framework relies on specialized Community Resource Persons, known as Bank Sakhis, Krishi Sakhis, and Pashu Sakhis, to provide last-mile technical and financial services.
4. The program is fully funded by the Central Government as a 100% Central Sector Scheme.

Which of the statements given above are correct?

- (a) 1 and 4
- (b) 2 and 3 only
- (c) 1, 2 and 3
- (d) 2 and 4 only

Correct Answer: (b)

Explanation:

- **Statement 1 is incorrect:** DAY-NRLM operates exclusively under the administrative command of the Ministry of Rural Development (MoRD), focusing on poor rural households, whereas urban areas are covered under a separate sister mission (DAY-NULM).
- **Statement 2 is correct:** The financial inclusion component has successfully enabled massive disbursements of collateral-free institutional credit to community-led SHGs with exceptional repayment records.
- **Statement 3 is correct:** The operational model is driven by trained women community leaders deployed as functional sector specialists (Bank Sakhis for credit linkages, Krishi Sakhis for agro-ecology, and Pashu Sakhis for livestock management).
- **Statement 4 is incorrect:** DAY-NRLM is a Centrally Sponsored Scheme, meaning it is jointly funded through a cost-sharing formula divided between the Center and the States, rather than being financed exclusively as a Central Sector Scheme.

8. Consider the following statements regarding the SOAR Program launched under the Skill India Mission:

1. It is implemented by the Ministry of Skill Development and Entrepreneurship (MSDE) in structured coordination with the Ministry of Education.
2. The target demographic of the program is designed to deliver fundamental artificial intelligence (AI) literacy modules specifically to school students from Classes 6 to 12 and educators.
3. The program includes a capital funding allocation in the Union Budget 2025–26 to establish a dedicated Centre of Excellence in AI for Education.

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 only
- (d) 1, 2 and 3

Correct Answer: (d)

Explanation:

- **Statement 1 is correct:** The SOAR initiative is an advanced literacy program spearheaded by the MSDE and closely integrated with the Ministry of Education to systematically update digital and technological competencies.
- **Statement 2 is correct:** The curriculum focuses on building foundational AI capability early in education, using standardized 15-hour modules for school pupils in Classes 6 through 12, complemented by an advanced 45-hour development framework for teachers.
- **Statement 3 is correct:** To support long-term institutional research and ensure equal digital access between urban and rural centers, a fiscal outlay of ₹500 crore was allocated in the Union Budget 2025–26 to construct a dedicated national Centre of Excellence in AI for Education.

9. Consider the following statements regarding the Studentship Program for Ayurveda Research Ken (SPARK-4.0):

1. It is a flagship research studentship scheme launched and monitored by the Central Council for Research in Ayurvedic Sciences (CCRAS) under the Ministry of Ayush.
2. The financial grants under this program are explicitly for post-graduate (MD/MS) and doctoral research scholars specializing in classical pharmacology.

Select the answer using the code given below:

- (a) 1 only
- (b) 2 only

- (c) Both 1 and 2
(d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** SPARK-4.0 is the fourth iteration of the competitive studentship program developed by CCRAS, an autonomous body under the Ministry of Ayush, to embed scientific and evidentiary methodology into the traditional medicine framework.
- **Statement 2 is incorrect:** The program is specifically designed for undergraduate (BAMS) students, not post-graduates or PhD scholars. It selects 300 undergraduate Ayurvedic students to complete short-term, faculty-guided independent research projects backed by a financial stipend of ₹50,000.

10. Match the newly launched digital initiatives of the Ministry of Ports, Shipping and Waterways (MoPSW) with their respective core operational objectives:

Digital Initiative	Primary Operational Purpose
1. Digital Centre of Excellence (DCoE)	P. Real-time KPI monitoring system to track Maritime India Vision 2030 projects.
2. SAGAR SETU Platform	Q. Standardized, transparent tariff application template to boost major port investor confidence.
3. DRISHTI Framework	R. Collaborative institutional hub with C-DAC to deploy AI, IoT, and Blockchain for smart ports.
4. Scale of Rates (SOR) Template	S. Unified national EXIM digital interface connecting ports and stakeholders to eliminate physical paperwork.

Select the correct structural alignment from the codes given below:

- (a) 1-R, 2-S, 3-P, 4-Q
(b) 1-S, 2-R, 3-Q, 4-P
(c) 1-R, 2-P, 3-S, 4-Q
(d) 1-P, 2-S, 3-R, 4-Q

Correct Answer: (a)

Explanation:

- **1 matches with R:** The Digital Centre of Excellence (DCoE) is established as a joint venture between MoPSW and C-DAC to deploy technology (AI, IoT, and Blockchain) to build automated smart ports and support green logistics operations.
- **2 matches with S:** The SAGAR SETU platform functions as a single-window unified National Logistics Portal (Marine), linking over 80 ports and 40+ maritime stakeholders to streamline B2G and B2B EXIM procedures and reduce transaction processing bottlenecks.
- **3 matches with P:** The DRISHTI Framework is an internal dashboard system (Data-driven Review Institutional System for Tracking Implementation) developed to provide objective, real-time tracking of targets outlined under the Maritime India Vision 2030 using data analytics.
- **4 matches with Q:** The Scale of Rates (SOR) Template provides a standardized tariff application format across India's major corporate and trust ports, providing clear digital comparisons, reducing administrative ambiguity, and improving the ease of doing business.

Schemes in News – IV

1. Consider the following statements regarding the 'PANKHUDI' portal:

1. It is a single-window, integrated digital interface launched by the Ministry of Women and Child Development to facilitate CSR and voluntary investments.
2. To maintain absolute transaction auditability and financial tracking, the platform allows direct fiscal fund transfers.

Select the answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** The PANKHUDI portal is an institutional single-window platform launched by the Ministry of Women and Child Development to aggregate, track, and optimize CSR funds and voluntary civil partnerships targeting nutrition, early childhood care, and women's empowerment.
- **Statement 2 is incorrect:** A defining operational design trap of the PANKHUDI portal is that it accepts non-cash contributions only. By restricting access solely to material goods and services, the architecture guarantees direct, visible supply-chain traceability down to individual Anganwadis and Child Care Institutions, preventing the financial leakages often tied to direct cash donations.

2. Consider the following statements regarding the Pradhan Mantri Dhan-Dhaanya Krishi Yojana (PMDDKY):

1. It is implemented as a comprehensive Central Sponsored Scheme under the Ministry of Agriculture and Farmers' Welfare.
2. The operational layout is restricted exclusively to 100 underperforming districts identified by NITI Aayog based on poor credit access and low crop productivity.
3. The fiscal architecture is structured around a multi-year budget allocation of ₹1.44 lakh crore operating across a 6-year program timeline from 2025 to 2031.
4. The mission unifies agricultural administrative delivery by merging 36 existing individual central schemes under a single digital tracking framework.

Which of the statements given above are correct?

- (a) 1 and 2
- (b) 3 and 4 only
- (c) 2, 3 and 4
- (d) 1 and 3 only

Correct Answer: (c)

Explanation:

- **Statement 1 is incorrect:** The Pradhan Mantri Dhan-Dhaanya Krishi Yojana (PMDDKY) is a Central Sector Scheme that aims to transform Indian agriculture by boosting productivity and sustainability in 100 underperforming districts.
- **Statement 2 is correct:** The eligibility criteria enforce a strict geographic footprint, locking implementation exclusively inside 100 underperforming districts mapped out by NITI Aayog due to low baseline crop productivity and lagging agricultural parameters.

- **Statement 3 is correct:** The fiscal layout dictates a structured, predictable multi-year investment window totaling ₹1.44 lakh crore, distributed linearly at ₹24,000 crore annually over the 2025–2031 timeline.
- **Statement 4 is correct:** To curb administrative fragmentation, PMDDKY drives massive convergence by combining 36 pre-existing distinct agricultural support lines into a unified digital framework monitored across 117 Key Performance Indicators (KPIs).

3. Consider the following statements regarding the We Rise Initiative:

1. The initiative is established as a public-private partnership between NITI Aayog's Women Entrepreneurship Platform (WEP) and the global logistics leader DP World.
2. The core objective is to identify, incubate, and upgrade high-potential women-led micro, small, and medium enterprises (MSMEs) into export-ready organizations.
3. The program offers direct financial subsidies to cover 20% of the international shipping freight costs for all registered members of the WEP network.

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 only
- (d) 1, 2 and 3

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** The 'We Rise' program is a public-private ecosystem initiative under WEP's Award to Reward (ATR) framework, matching NITI Aayog's infrastructure with DP World's global supply chain network.
- **Statement 2 is correct:** Its core objective is to scale domestic women-led MSMEs internationally by teaching global trade compliance, improving capacity building, and integrating them into global value chains.
- **Statement 3 is incorrect:** The initiative does not provide direct shipping freight subsidies to the entire WEP database. Instead, it offers a targeted trade market access route, selecting 100 specific women entrepreneurs to directly display and market their physical products at Bharat Mart in Dubai.

4. Consider the following statements regarding the National Technology Readiness Assessment Framework (NTRAF):

1. It is a standardized assessment architecture developed and implemented by the Office of the Principal Scientific Adviser (OPSA) to the Government of India.
2. The framework relies on a narrative-based qualitative review system to evaluate the early lab-stage potential of research innovations.
3. A primary economic target of the NTRAF model is to bridge and de-risk the research transition gap known as the Valley of Death between Technology Readiness Levels (TRL) 4 and 7.

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (c)

Explanation:

- **Statement 1 is correct:** NTRAF is managed by the Office of the Principal Scientific Adviser (OPSA) to the Government of India, built in technical coordination with the Confederation of Indian Industry (CII).
- **Statement 2 is incorrect:** NTRAF explicitly rejects subjective narrative assessments. It enforces an objective, check-list-driven metric system across 9 explicit Technology Readiness Levels (TRLs) to accurately calculate technology development milestones.
- **Statement 3 is correct:** The framework focuses its de-risking mechanisms precisely on the TRL 4 to TRL 7 bandwidth. This phase represents the dangerous Valley of Death where promising laboratory prototypes routinely fail due to a lack of structured funding and verification before commercial scaling.

5. Consider the following statements regarding the One Nation, One Subscription (ONOS) Scheme:

1. It is a central initiative designed to provide unified, country-wide access to top international scientific journals and research databases for all recognized Indian academic and R&D institutions.
2. The nodal execution and implementation framework for negotiating, purchasing, and managing these national institutional journal licenses is handled directly by DST.
3. The platform replaces individual institutional journal subscriptions with a centrally funded model to optimize public spending and broaden access to scholarly literature.

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 3 only
- (d) 1, 2 and 3

Correct Answer: (b)

Explanation:

- **Statement 1 is correct:** The ONOS scheme establishes a unified, state-backed gateway that enables all recognized higher education colleges, universities, and public R&D facilities across India to access premier international scientific journals through a national license.
- **Statement 2 is incorrect:** The nodal implementation, international publisher negotiations, and payment consolidation are managed by the Ministry of Education and its technical consortia (like the Information and Library Network - INFLIBNET).
- **Statement 3 is correct:** By shifting from fragmented, high-cost individual university subscriptions to a consolidated, centrally funded national subscription model, ONOS lowers costs through bulk purchasing while opening access to tier-2 and tier-3 institutions.

6. Consider the following statements regarding the Pradhan Mantri Jan Arogya Yojana (PM-JAY):

1. It provides a non-contributory, cashless annual health assurance cover of ₹5 lakh per eligible family, completely free of restrictions regarding size, age, or gender configurations.
2. The targeted identification of beneficiary families under the core architecture relies on real-time registrations via the PM Viksit Bharat portal.

Select the answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** PM-JAY delivers an absolute family-floater medical coverage pool of ₹5 lakh per annum for secondary and tertiary inpatient care, with no caps on family size, age distributions, or gender, ensuring comprehensive social protection.
- **Statement 2 is incorrect:** Baseline eligibility for PM-JAY is determined by the Socio-Economic Caste Census of 2011 (SECC-2011) data, which was recently expanded through policy adjustments to include all senior citizens aged 70 years and above, regardless of their original SECC listing.

7. Consider the following statements regarding the Depot Darpan Portal:

1. It is a real-time digital infrastructure monitoring system launched by the Ministry of Consumer Affairs, Food & Public Distribution.
2. The auditing verification layer requires warehouse depot managers to upload geo-tagged infrastructure datasets that are validated by third-party audits.
3. The analytical engine uses automated AI tools to run real-time bag counting and Face Recognition Systems (FRS) across all private and state corporate agricultural warehouses.

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 only
- (d) 1, 2 and 3

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** The Depot Darpan Portal and mobile app were built by the Ministry of Consumer Affairs, Food & Public Distribution to track, audit, and modernize India's massive food grain storage footprint.
- **Statement 2 is correct:** To prevent falsification, depot managers must submit geo-tagged field infrastructure data directly through the platform. These inputs are cross-checked via multi-tier supervisory structures and regular independent third-party audits.
- **Statement 3 is incorrect:** While the platform covers a broad network of 2,278 warehouses (including FCI and CWC facilities), advanced AI tools such as automated bag counting, Automatic Number Plate Recognition (ANPR), and Face Recognition Systems (FRS)—are currently deployed as targeted pilot programs, rather than running live across all nationwide warehouses.

8. Consider the following statements regarding the PM Viksit Bharat Rozgar Yojana (PM-VBRY):

1. The scheme is a national employment-linked incentive program administered under the administrative guidance of the Ministry of Labour and Employment.
2. Under Part A, eligible first-time employees receive an incentive equal to a one-month EPF wage up to ₹15,000, which is paid immediately upon initial registration.
3. The employer financial incentives under Part B are structured as wage-based monthly payments ranging from ₹1,000 to ₹3,000 depending on the salary brackets of the newly hired staff.
4. The financial tenure for employer wage incentives is standard across all commercial sectors, capped at a maximum period of 2 years.

Which of the statements given above are correct?

- (a) 1 and 3 only
- (b) 2 and 4
- (c) 1, 2 and 3
- (d) 3 and 4 only

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** PM-VBRY is a massive national formal job creation incentive program administered directly by the Ministry of Labour and Employment, carrying a fiscal allocation of ₹99,446 crore from 2025 to 2027.
- **Statement 2 is incorrect:** The first-time employee incentive is not paid immediately upon registration. It is split into two installments: the first half drops after 6 months of active service, and the second half is paid only after 12 months and the completion of mandatory financial literacy training.
- **Statement 3 is correct:** Part B details fixed employer incentives based on wage tiers: ₹1,000 for wages ≤ ₹10,000; ₹2,000 for wages between ₹10,001–₹20,000; and ₹3,000 for wages between ₹20,001–₹1,00,000.
- **Statement 4 is incorrect:** The incentive tenure is not uniform. While most sectors have a standard 2-year benefit window, the government extends this to 4 years for manufacturing units to drive structural industrial hiring.

9. Consider the following statements regarding the Internet Governance Internship & Capacity Building Scheme (IGICBS):

1. It is a strategic capacity-building internship layout administratively anchored under the Ministry of Electronics and Information Technology (MeitY).
2. The National Internet Exchange of India (NIXI) serves as the designated nodal implementing body for the scheme.
3. The operational design targets engineering graduates exclusively, focusing solely on core routing protocols and domain name system (DNS) hardware configurations.
4. The program includes an institutional pathway called the NIXI Internet Influencer track to certify high-performing interns for global policy engagement.

Which of the statements given above are correct?

- (a) 1 and 3
- (b) 1, 2 and 4
- (c) 2 and 4 only
- (d) 1, 2, 3 and 4

Correct Answer: (b)

Explanation:

- **Statement 1 is correct:** IGICBS is an institutional capacity-building framework under MeitY designed to train young professionals to represent India in international internet governance forums.
- **Statement 2 is correct:** NIXI is the active nodal implementation organization handling the application, placement, and training mechanics of the interns.
- **Statement 3 is incorrect:** The scheme features an interdisciplinary model rather than an exclusive engineering focus. It explicitly integrates technology with law, public policy, cybersecurity, digital identity, and Universal Acceptance (UA) to build well-rounded policy experts.
- **Statement 4 is correct:** The NIXI Internet Influencer pathway provides a long-term professional development track, certifying top-performing interns to serve as digital ambassadors in global internet architecture decisions.

10. Consider the following statements regarding the Seva Se Seekhen Campaign:

1. The initiative is a coordinated multi-ministerial campaign launched jointly by the Ministry of Youth Affairs and Sports and the Ministry of Chemicals and Fertilizers.

2. The target implementation model deploys 50 youth volunteers per district across all Indian states to manage regional drug logistics hubs.
3. The deployment structure relies on a short-term, 15-day structured internship framework to teach generic medicine literacy and inventory management.

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (c)

Explanation:

- **Statement 1 is correct:** The campaign represents a joint public service initiative co-managed by the Ministry of Youth Affairs and Sports alongside the Department of Pharmaceuticals, Ministry of Chemicals and Fertilizers.
- **Statement 2 is incorrect:** The campaign does not deploy 50 volunteers per district. The precise metrics mandate five youth volunteers per district, who are split up and embedded across five individual regional Pradhan Mantri Bhartiya Janaushadhi Kendras (JAKs).
- **Statement 3 is correct:** The program uses a highly compact 15-day structured internship window. This setup allows volunteers from platforms like MY Bharat and pharmacy colleges to gain hands-on experience in public healthcare, generic medicine literacy, and basic stock logistics.

Schemes in News – V

1. Consider the following statements regarding the Digital Hub for Reference and Unique Virtual Address (DHRUVA) initiative:

1. It is a national DPI launched as a mandatory regulatory framework for all domestic e-commerce transactions by NITI Aayog.
2. The operational backbone relies on the DIGIPIN system, which uses a 10-character alphanumeric geocode capable of mapping grid patches across Indian territory.
3. To maintain strict data privacy, the framework permits third-party commercial platforms to hold, unrestricted structural access to verified textual addresses once authorized.
4. The structural management of the ecosystem is designed to be administered by an independent, not-for-profit Section 8 institutional entity.

Which of the statements given above are correct?

- (a) 1 and 3
- (b) 2 and 4 only
- (c) 1, 2 and 4
- (d) 1 and 4 only

Correct Answer: (b)

Explanation:

- **Statement 1 is incorrect:** DHRUVA is a voluntary Digital Public Infrastructure (DPI), not a mandatory regulatory framework. Furthermore, it was introduced via a draft policy by the **Department of Posts** in 2025 for public consultation, not NITI Aayog.
- **Statement 2 is correct:** The architecture leverages DIGIPIN as its core backbone. DIGIPIN is an open-source, 10-character alphanumeric geocoding system that divides the entire Indian geographical

territory into highly precise 14 square meter patches (~228 billion unique pins) based on latitude and longitude coordinates.

- **Statement 3 is incorrect:** A key feature of DHRUVA is its consent-based, time-bound access mechanism. Private entities cannot retain permanent or unrestricted access; Address Information Agents (AIAs) strictly manage consent workflows to guarantee user-controlled privacy.
- **Statement 4 is correct:** To ensure institutional scalability and interoperability similar to the UPI network, the framework mandates that a Section 8 not-for-profit corporate body (functioning much like the National Payments Corporation of India - NPCI) will administer the digital ecosystem.

2. Which of the following statements with regard to the NAKSHA Capacity Building Programme is/are correct?

1. It is a technology-driven initiative developed by the Ministry of Housing and Urban Affairs to replace rural cadastral records with satellite maps.
2. The framework utilizes Global Navigation Satellite System (GNSS) tech alongside orthorectified drone surveys to modernize urban land records.

Select the answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (b)

Explanation:

- **Statement 1 is incorrect:** The NAKSHA (National Geospatial Knowledge-Based Land Survey of Urban Habitations) programme is developed by the Department of Land Resources (DoLR) under the Ministry of Rural Development, not the Ministry of Housing and Urban Affairs. Furthermore, its focus is explicitly directed at mapping and modernizing urban and semi-urban habitations across Urban Local Bodies (ULBs), rather than replacing rural cadastral records.
- **Statement 2 is correct:** To achieve legal and geographic precision, the program utilizes high-tech survey instrumentation including the Global Navigation Satellite System (GNSS), Electronic Total Station (ETS), and high-resolution aerial imagery generated through orthorectified drone surveys executed by third-party technical vendors.

3. Consider the following statements regarding the SOAR Program:

1. The initiative is a flagship capacity-building rollout implemented under the Skill India Mission targeting school students from Classes 6 to 12 as well as educators.
2. The operational structure delivers learning modules through the completely decentralized offline network of state-level polytechnic institutes.
3. The fiscal framework includes a dedicated Union Budget allocation of ₹500 crore to set up an institutional Centre of Excellence for AI in Education.

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 3 only
- (d) 1, 2 and 3

Correct Answer: (b)

Explanation:

- **Statement 1 is correct:** The SOAR program is a core initiative under the Skill India Mission designed to embed Artificial Intelligence (AI) literacy, tech competencies, and ethical tech principles into school education, covering students in Classes 6–12 alongside their teachers. It is co-managed by the Ministry of Skill Development and Entrepreneurship (MSDE) and the Ministry of Education.
- **Statement 2 is incorrect:** The learning modules are not deployed exclusively through offline state polytechnics. Instead, the architecture relies heavily on cross-platform digital access by integrating directly with the Skill India Digital Hub (SIDH) to balance the skill gap separating rural and urban cohorts.
- **Statement 3 is correct:** To provide continuous academic support, the Union Budget 2025–26 explicitly designated a ₹500 crore financial envelope to construct a dedicated, specialized Centre of Excellence for AI in Education.

4. Consider the following statements regarding the Pradhan Mantri Kaushal Vikas Yojana (PMKVY):

1. It is a flagship central sector skill certification scheme launched under the administrative umbrella of the Ministry of Labour and Employment.
2. The Recognition of Prior Learning (RPL) component provides formal assessment and certification to informal sector workers such as traditional artisans and craftsmen.
3. The current iteration (PMKVY 4.0) incorporates emerging future-ready technologies including the Internet of Things (IoT), mechatronics, drones, and AI-based analytics.

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 3 only
- (d) 1, 2 and 3

Correct Answer: (b)

Explanation:

- **Statement 1 is incorrect:** PMKVY is administered and executed under the Ministry of Skill Development and Entrepreneurship (MSDE) under the broader Skill India Mission, not the Ministry of Labour and Employment.
- **Statement 2 is correct:** The RPL (Recognition of Prior Learning) parameter of PMKVY serves as an essential regulatory bridging tool that formally assesses, validates, and certifies the preexisting competencies of informal labor market participants (such as weavers, artisans, and craftsmen), thereby integrating them into the formal economic landscape.
- **Statement 3 is correct:** Under PMKVY 4.0, the training framework has been updated to cover advanced technology sectors such as AI, robotics, mechatronics, IoT, and drone engineering, while simultaneously aligning with the Academic Bank of Credits and the unified Skill India Digital Hub.

5. Consider the following statements regarding the Ayush Nivesh Saarthi Portal:

1. It is a specialized, interactive single-window investment facilitation platform built by the Ministry of Ayush in strategic partnership with Invest India.
2. The core objective is to centralize policy documentation, fiscal incentives, and project dashboards to boost Private Capital and Foreign Direct Investment (FDI) in traditional medicine systems.
3. The platform's regulatory model is aligned with India's current FDI threshold, which caps foreign equity investments at a maximum of 49% under the government approval route for the Ayush manufacturing sector.

Select the answer using the code given below:

- (a) 1 and 2 only

- (b) 2 and 3 only
- (c) 1 only
- (d) 1, 2 and 3

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** The Ayush Nivesh Saarthi Portal is an advanced digital environment engineered jointly by the Ministry of Ayush and Invest India to create an un-fragmented interface for prospective national and international market participants.
- **Statement 2 is correct:** The portal aims to improve the ease of doing business by offering real-time facilitation via dynamic dashboards, consolidating cross-cutting industrial incentives, and matching investors with investment-ready projects in traditional health fields.
- **Statement 3 is incorrect:** The platform is structurally engineered to leverage India's highly liberalized investment framework, which permits 100% Foreign Direct Investment (FDI) under the automatic route within the Ayush sector, making any claim of a 49% government-route restriction factually incorrect.

6. Consider the following statements regarding the District-Led Textiles Transformation (DLTT) Plan:

1. It introduces a data-driven district scoring matrix managed by the Ministry of Commerce and Industry to regulate clothing retail prices.
2. The strategic framework divides target districts into two specialized operational bands: Champion Districts focused on Scale/Industry 4.0 and Aspirational Districts focused on Foundation/Formalization.
3. The plan includes a targeted geographic sub-component called the Purvodaya convergence designed to scale tribal handloom clusters and achieve GI-tagging for regional handicrafts.

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 3 only
- (d) 1, 2 and 3

Correct Answer: (b)

Explanation:

- **Statement 1 is incorrect:** The DLTT Plan is an intrinsic sectoral modernization strategy developed and managed by the Ministry of Textiles, not the Ministry of Commerce and Industry. Its purpose is to evaluate and map localized textile ecosystems—judging export metrics, MSME health, and artisan density—rather than fixing or regulating clothing retail market pricing.
- **Statement 2 is correct:** The plan avoids a one-size-fits-all approach by categorizing districts into two distinct development streams: Champion Districts (receiving Mega Common Facility Centres, advanced logistics setups, and direct export linkages) and Aspirational Districts (focusing on fundamental vocational training, Raw Material Banks, and formalizing Self-Help Groups/cooperatives).
- **Statement 3 is correct:** The Purvodaya convergence framework redirects specialized policy attention toward Eastern and North-Eastern India to protect and commercialize unique regional tribal craft identities through Geographical Indication (GI) verification and infrastructural connectivity upgrades.

7. Consider the following statements regarding the Central Excise (Amendment) Act, 2025 and the GST Compensation Cess:

1. The Act updates central excise duties on tobacco products to increase the overall tax burden following the scheduled winding down of the GST compensation cess.
2. Under the adjusted tax rates, the statutory excise duty on unmanufactured tobacco has been reduced from 74% to a baseline of 25%.
3. Traditional hand-rolled beedis have been officially brought under a revised 40% GST rate bracket alongside all other premium tobacco formulations.
4. The long-standing GST compensation cess, originally rolled out in July 2017 to protect state revenues, is scheduled to be phased out completely in early 2026.

Which of the statements given above are correct?

- (a) 1 and 4 only
- (b) 2 and 3
- (c) 1, 2 and 4
- (d) 2, 3 and 4

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** Because tobacco and its derivatives continue to sit outside the full, singular GST net, the Central Excise (Amendment) Act, 2025 explicitly raises excise duties to sustain high overall revenue flows and meet public health objectives after the expiration of the GST compensation cess.
- **Statement 2 is incorrect:** The statutory adjustment **increased** excise margins rather than reducing them. For unmanufactured tobacco, rates climbed from 64% to 70%, while smoking mixtures scaled all the way up to 325%.
- **Statement 3 is incorrect:** The statutory tax restructuring divides the categories: traditional beedis are moved into the 18% GST bracket, whereas all other high-margin tobacco product formulations are placed inside the top 40% GST tier.
- **Statement 4 is correct:** The GST compensation cess, which entered active service alongside the GST launch in July 2017 (and was extended due to pandemic fiscal gaps), concludes its structural lifetime on March 31, 2026, with a complete phase-out from February 1, 2026.

8. Consider the following statements regarding the PRAGATI (Pro-Active Governance and Timely Implementation) platform:

1. It functions as a centralized, multi-tier ICT platform under the direct operational leadership of the Prime Minister to handle high-level monitoring and project tracking.
2. The institutional architecture features a unique three-tier interface that links the Prime Minister's Office (PMO), Union Secretaries, and State Chief Secretaries simultaneously.
3. The platform operates on an independent data ecosystem, intentionally blocking external national data systems like CPGRAMS to prevent data congestion.

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 only
- (d) 1, 2 and 3

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** PRAGATI was launched on March 25, 2015, as an advanced interactive portal spearheaded by the Prime Minister to drive e-transparency, enforce accountability, and speed up the execution of mega infrastructure initiatives of national importance.
- **Statement 2 is correct:** A major structural innovation of PRAGATI is its three-tier architecture. By bringing the PMO, central administrative heads (Union Secretaries), and state execution heads (State Chief Secretaries) onto a single video-conferencing and data screen, it breaks down institutional silos and speeds up inter-state resolutions.
- **Statement 3 is incorrect:** PRAGATI does not isolate itself from other data systems. Rather, it thrives on unified data sourcing, combining feeds from the Centralized Public Grievance Redress and Monitoring System (CPGRAMS), Project Monitoring Group (PMG), and the Ministry of Statistics and Programme Implementation (MoSPI) into a centralized analytics dashboard.

9. Consider the following statements regarding the ARISE Program and the Climate Investment Funds (CIF):

1. It was introduced at the COP30 in Brazil as a next-generation resilience framework to embed climate adaptation into the national economic architectures of developing nations.
2. The CIF functions as a multilateral finance mechanism established under the institutional housing of the World Bank Group and is executed through multiple Multilateral Development Banks (MDBs).
3. The structural portfolio of the CIF is organized around two primary operational windows: the Clean Technology Fund (CTF) and the Strategic Climate Fund (SCF).

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (d)

Explanation:

- **Statement 1 is correct:** The ARISE (Accelerating Resilience Investments and Innovations for Sustainable Economies) program was officially launched at the COP30 Climate Summit in Belém, Brazil, backed by an initial \$100 million anchor funding commitment from Germany and Spain. Its purpose is to mainstream climate resilience directly into macroeconomic planning and mobilize catalytic adaptation finance.
- **Statement 2 is correct:** Established in 2008, the CIF is a prominent multilateral climate finance window hosted by the World Bank. Instead of operating in isolation, its projects are implemented through six collaborative Multilateral Development Banks (including the IFC, ADB, AfDB, and EBRD) to ensure country-led development.
- **Statement 3 is correct:** The CIF architecture splits its targeted interventions into two core funding lines: the Clean Technology Fund (CTF), which concentrates on low-carbon transitions like renewable energy and clean transit, and the Strategic Climate Fund (SCF), which pilots resilience models, forestry protection, and smart urban ecosystems. Since all three statements are factually and analytically accurate, option (d) is the correct choice.

10. Which of the following statements with regard to the Transplantation of Human Organs and Tissues Rules, 2025 is/are correct?

1. The amendments introduce a mandatory requirement for all localized eye banks to install clinical specular microscopes before performing basic tissue collection.

2. The statutory framework transfers the regulatory oversight of the National Organ Transplant Programme (NOTP) to private medical councils in rural areas.

Select the answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (d)

Explanation:

- **Statement 1 is incorrect:** The 2025 rules removed the mandatory requirement for clinical specular microscopes (previously used to assess endothelial cell layers). This policy shift lowers equipment costs and administrative burdens, helping smaller, non-metro eye care clinics perform corneal operations.
- **Statement 2 is incorrect:** The statutory revisions are designed to strengthen the National Organ Transplant Programme (NOTP) by improving public-led integration among hospitals, public tissue banks, and sovereign health regulators. It does not hand over regulatory oversight of this national public program to private medical councils.

Schemes in News – VI

1. Consider the following statements regarding the Graded Response Action Plan (GRAP) for Delhi-NCR:

- 1. It is a statutory framework operating under the Commission for Air Quality Management (CAQM) and the Environment (Protection) Act, 1986.
- 2. The implementation framework relies strictly on a reactive model, where restrictions can only be triggered after real-time ground monitors record pollution peaks.
- 3. The operational logic is cumulative, meaning each higher emergency stage automatically carries forward all mitigation measures from the lower stages.

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 3 only
- (d) 1, 2 and 3

Correct Answer: (b)

Explanation:

- **Statement 1 is correct:** GRAP is a statutory, stage-wise emergency framework enforced under the directives of the Supreme Court and the Environment (Protection) Act, 1986, and is actively managed by the Commission for Air Quality Management (CAQM).
- **Statement 2 is incorrect:** Following revisions by the CAQM, GRAP utilizes a predictive, preemptive enforcement framework based on advanced meteorological and pollution dispersion forecasts provided by the India Meteorological Department (IMD) and the Indian Institute of Tropical Meteorology (IITM). This allows authorities to invoke restrictive actions before air quality drops into a higher hazard bracket.
- **Statement 3 is correct:** GRAP uses a cumulative implementation mechanism. When a severe or severe+ pollution stage is declared (e.g., Stage III or IV), all foundational measures belonging to the lower stages (Stages I and II) remain active and are progressively tightened.

2. Which of the following statements with regard to the MAHA-MedTech Mission is/are correct?

1. It is a national technology commercialization initiative launched jointly by the ANRF, the Indian Council of Medical Research (ICMR), and the Bill & Melinda Gates Foundation.
2. The financial assistance framework is limited to central government PSUs engaged in vaccine production.

Select the answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** The Mission for Advancement in High-Impact Areas (MAHA)-MedTech is a targeted public-philanthropic partnership linking the apex research funding body ANRF, the medical research council ICMR, and the Bill & Melinda Gates Foundation to advance local biomedical engineering.
- **Statement 2 is incorrect:** The funding architecture is broad and competitive, offering ₹5-25 crore (and up to ₹50 crore in exceptional circumstances) to startups, MSMEs, academic institutions, clinical networks, and industrial collaborations to reduce high-cost import dependencies. It is not restricted to public sector undertakings or vaccine production lines.

3. Consider the following statements regarding the national Cyber Suraksha initiative:

1. It is a multi-phased national security cyber defense exercise organized and conducted by the National Security Council Secretariat (NSCS).
2. The operational execution includes table-top exercises, leadership capsules, and a specialized Chief Information Security Officers (CISOs) Conclave.
3. The organizing node, Defence Cyber Agency (DCyA), is an integrated tri-service formation functioning directly under the administrative oversight of the Ministry of Home Affairs.
4. The operational architecture of DCyA serves as a centralized military cyber war command reporting to the Chief of Defence Staff (CDS).

Which of the statements given above are correct?

- (a) 1 and 3
- (b) 2 and 4 only
- (c) 1, 2 and 4
- (d) 1 and 4 only

Correct Answer: (b)

Explanation:

- **Statement 1 is incorrect:** The Cyber Suraksha exercise is organized and executed by the Defence Cyber Agency (DCyA), the specialized cyber operations arm of the Indian Armed Forces, not the civilian NSCS.
- **Statement 2 is correct:** The drill uses a gamified environment featuring table-top crisis drills, technical skill evaluation paths, and a dedicated CISO Conclave to align military-technical workflows with national strategic policy.
- **Statement 3 is incorrect:** DCyA is a tri-service military formation operating under the Ministry of Defence, not the Ministry of Home Affairs.

- **Statement 4 is correct:** DCyA serves as the unified military center for cyber operations, cyber warfare strategies, and emergency cyber responses across the Army, Navy, and Air Force. It reports directly to the Chief of Defence Staff (CDS) through the Integrated Defence Staff (IDS).

4. Consider the following statements regarding the legal Safe Harbour protection for digital intermediaries in India:

1. Safe harbour status acts as a conditional immunity shielding online intermediaries from legal liability arising from user-generated content.
2. The statutory foundation for this legal shield is codified under Section 79 of the Information Technology Act, 2000.
3. Intermediaries maintain absolute, protection against third-party content regardless of state notifications or data removal orders.
4. Under the regulatory architecture, digital intermediaries are required to appoint a Grievance Officer and a Nodal Contact Person who must be located in India.

Which of the statements given above are correct?

- (a) 1, 2 and 4
- (b) 2 and 3 only
- (c) 1 and 4 only
- (d) 2, 3 and 4

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** Safe harbour is a foundational legal doctrine that protects internet intermediaries (social networks, search engines, ISPs) from being treated as publishers or primary legal targets for unauthorized materials uploaded by external users.
- **Statement 2 is correct:** In India, this structural defense is granted under Section 79 of the Information Technology Act, 2000, which functions as the domestic equivalent to global internet standards like Section 230 of the US Communications Act.
- **Statement 3 is incorrect:** The immunity is strictly conditional. Intermediaries can forfeit this shield if they fail to act upon receiving actual knowledge of unlawful acts through court mandates or government takedown orders, or if they violate content moderation standards on cyber frauds, deepfakes, and misinformation.
- **Statement 4 is correct:** As mandated by the IT Rules, 2021, platforms must maintain continuous compliance infrastructure, which includes appointing a dedicated Grievance Officer and a Nodal Contact Person physically based in India, alongside publishing monthly transparency and compliance metrics.

5. Consider the following statements regarding the Pradhan Mantri Ayushman Bharat Health Infrastructure Mission (PM-ABHIM):

1. It is a comprehensive pan-India program focused on long-term epidemic preparedness, disease surveillance networks, and expanding primary-to-tertiary health facilities.
2. The fiscal layout is constructed as a hybrid model containing both Centrally Sponsored Scheme and Central Sector Scheme financing components.
3. The mission's architecture operates independently from older national frameworks, avoiding overlap with the National Health Policy 2017 or the National Health Mission (NHM).

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only

- (c) 1 only
(d) 1, 2 and 3

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** PM-ABHIM is an integrated public health delivery framework designed to systematically strengthen institutional response capabilities against future biological shocks, pandemic spikes, and healthcare gaps.
- **Statement 2 is correct:** The mission utilizes a total financial outlay of ₹64,180 crore via a hybrid financing architecture, breaking its individual development goals into either Central Sector or Centrally Sponsored funding brackets to share administrative costs with state health departments.
- **Statement 3 is incorrect:** PM-ABHIM does not operate in isolation. It is engineered to build upon and merge with preexisting healthcare architectures, including the National Health Policy 2017, the National Health Mission (NHM), and the core Ayushman Bharat ecosystems to create a unified public healthcare model.

6. Which of the following statements with regard to the National Polio Surveillance Network (NPSN) is/are correct?

1. It was established in 1997 as a collaborative public health initiative between the World Health Organization (WHO) and the Ministry of Health and Family Welfare.
2. The administrative mandate of the network remains locked to tracking wild poliovirus strains, without authority to support other immunization lines.

Select the answer using the code given below:

- (a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** The NPSN (originally functioning as the National Polio Surveillance Project - NPSP) was stood up in 1997 through a joint partnership linking the WHO and India's Ministry of Health and Family Welfare to provide field-level tracking of Acute Flaccid Paralysis (AFP).
- **Statement 2 is incorrect:** The functional footprint of the NPSN has evolved beyond its original single-disease tracking mission. While it continues to safeguard India's polio-free status, its decentralized field units and Surveillance Medical Officers (SMOs) have been integrated into broader health campaigns, including Measles-Rubella elimination and other routine Vaccine-Preventable Diseases (VPDs) surveillance under the Integrated Disease Surveillance Programme (IDSP).

7. Consider the following statements regarding the Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA) and its extended parameters:

1. The core PMSMA program delivers a free, standard package of advanced antenatal care (ANC) diagnostic services on the 9th day of every month at government health facilities.
2. The clinical risk stratification system uses a color-coded tagging method on medical cards, applying green stickers for high-risk pregnancies and red stickers for normal cases.
3. The Extended PMSMA (e-PMSMA) framework expands the health tracking window to provide continuous monitoring for high-risk conditions up to 45 days post-delivery.

4. Under the e-PMSMA guidelines, financial incentives are provided to Accredited Social Health Activists (ASHAs), while pregnant women receive no direct cash support.

Which of the statements given above are correct?

- (a) 1 and 3 only
- (b) 2 and 4
- (c) 1, 2 and 3
- (d) 1, 3 and 4 only

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** PMSMA provides fixed-day, specialist-driven antenatal care services on the 9th of every month, ensuring that pregnant women in their second or third trimesters receive a comprehensive diagnostic evaluation from OB-GYNs or medical officers.
- **Statement 2 is incorrect:** The risk-tagging color scheme is inverted: red stickers are applied to identify High-Risk Pregnancies (HRP) for continuous monitoring, while green stickers indicate normal, low-risk cases.
- **Statement 3 is correct:** Rolled out to expand maternal care, e-PMSMA extends tracking past the delivery phase, maintaining diagnostic check-ups for high-risk patients up to 45 days post-partum.
- **Statement 4 is incorrect:** The financial incentive system under e-PMSMA is dual-targeted. To encourage adherence to medical protocols, cash benefits are paid to both the pregnant women and their corresponding ASHA workers upon the successful completion of three additional, structured post-delivery check-ups.

8. Consider the following statements regarding the National Medical Register (NMR):

- 1. It is a centralized digital database established under Section 31 of the National Medical Commission (NMC) Act, 2019.
- 2. Registration and enrollment within the NMR are voluntary for practicing allopathic doctors holding an MBBS degree.
- 3. The data verification architecture uses a collaborative model where State Medical Councils (SMCs) are responsible for verifying academic credentials.

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 3 only
- (d) 1, 2 and 3

Correct Answer: (b)

Explanation:

- **Statement 1 is correct:** The NMR is an official national digital database built under the statutory authority of Section 31 of the National Medical Commission (NMC) Act, 2019, under the Ministry of Health and Family Welfare.
- **Statement 2 is incorrect:** Enrollment within the NMR is mandatory, not voluntary, for all Registered Medical Practitioners (RMPs) practicing allopathic medicine across India.
- **Statement 3 is correct:** The registry uses a collaborative structure. While the final database is maintained centrally, individual State Medical Councils (SMCs) serve as the primary verification layer responsible for reviewing medical qualifications and validating practitioner credentials.

9. Which of the following statements with regard to the YUVA AI for ALL Initiative is/are correct?

1. It is a free, self-paced 4.5-hour online literacy course launched by the Ministry of Electronics and Information Technology (MeitY) under the IndiaAI Mission.
2. The program is restricted to software development professionals and requires an advanced background in Python programming.

Select the answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** The YUVA AI for ALL program is a free, modular, 4.5-hour self-paced introductory course launched by MeitY via the IndiaAI Mission to foster basic AI understanding and promote responsible digital usage using real-world Indian case studies.
- **Statement 2 is incorrect:** The initiative is designed for a general audience, aiming to democratize basic AI concepts for 1 crore (10 million) citizens. It is built to be accessible to students, rural learners, and professionals without any prior coding or technical prerequisites.

10. Consider the following statements regarding the Scheme for Innovation and Technology Association with Aadhaar (SITAA):

1. It is a specialized research and development collaboration program launched by the Unique Identification Authority of India (UIDAI).
2. The framework focuses on co-developing technological defenses to protect biometric authentication systems against deepfakes and presentation attacks.
3. The operational layout includes specific innovation tracks for Face Liveness Detection and Presentation Attack Detection (PAD).
4. The initiative is executed inside closed UIDAI defense laboratories by linking UIDAI with MeitY Startup Hub and NASSCOM as executing authority.

Which of the statements given above are correct?

- (a) 1, 2 and 3
- (b) 2 and 4 only
- (c) 1 and 3 only
- (d) 2, 3 and 4

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** SITAA is an innovation-driven acceleration framework created by the UIDAI to build advanced, secure identity verification systems.
- **Statement 2 is correct:** The core mission is to safeguard India's digital public infrastructure by developing advanced cryptographic, software, and AI defenses against emerging digital threats like AI-generated deepfakes and biometric spoofing.
- **Statement 3 is correct:** The program is divided into three key innovation challenges: Face Liveness Detection (using AI to spot video/photo replays), Presentation Attack Detection (PAD tools to identify fake biometric inputs), and Contactless Fingerprint Authentication.
- **Statement 4 is incorrect:** Builds a national innovation ecosystem by linking UIDAI with MeitY Startup Hub and NASSCOM for mentorship, funding, and global outreach. SITAA is a highly collaborative, ecosystem-wide initiative.

Schemes in News – VII

1. Which of the following statements with regard to the Bhashini initiative is/are correct?

1. It is the National Language Translation Mission (NLTM) designed as a digital public infrastructure developed by the MeitY.
2. The platform is restricted to urban e-commerce translation, avoiding any structural integration with rural governance portals.

Select the answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Detailed Explanation:

- **Statement 1 is correct:** Bhashini is India's National Language Translation Mission (NLTM). It functions as an AI-powered digital public infrastructure to break language barriers, developed by the Ministry of Electronics and Information Technology (MeitY).
- **Statement 2 is incorrect:** Bhashini is actively focused on rural digital inclusion and participatory democracy. To build an inclusive multilingual e-governance ecosystem, a Memorandum of Understanding (MoU) links MeitY with the Ministry of Panchayati Raj (MoPR) to integrate its real-time speech-to-text and translation engines directly into rural governance platforms like eGramSwaraj.

2. Consider the following statements regarding the StartUp India initiative:

1. The initiative is a flagship campaign implemented through a dedicated team under the DPIIT.
2. To improve ease of doing business, the scheme operates through a structured 19-Point Action Plan framework covering lifecycle support from ideation to funding.
3. The cornerstone funding mechanism, the Fund of Funds for Startups (FFS), holds a ₹10,000 crore corpus managed by the IRDAI.

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 only
- (d) 1, 2 and 3

Correct Answer: (a)

Detailed Explanation:

- **Statement 1 is correct:** StartUp India is a flagship program launched on January 16, 2016 (celebrated as National StartUp Day) to catalyze a strong, inclusive innovation ecosystem. It is run by a specialized team within the DPIIT, Ministry of Commerce and Industry.
- **Statement 2 is correct:** The scheme's baseline implementation model uses a 19-Point Action Plan designed to lower compliance burdens, provide fast-track patent and IPR facilitation, and set up clear regulatory pathways for early-stage risk-taking.
- **Statement 3 is incorrect:** While the Fund of Funds for Startups (FFS) does manage a ₹10,000 crore corpus to feed risk capital into Alternative Investment Funds (AIFs), it is managed by the Small Industries Development Bank of India (SIDBI).

3. Consider the following statements regarding the Export Promotion Mission (EPM):

1. It is a unified national framework established in the Union Budget 2025–26 with a mission lifespan running from FY 2025–26 to FY 2030–31.
2. The DGFT serves as the nodal implementing agency for this mission.
3. The financial pillar of the mission contains a ₹20,000 crore Credit Guarantee Scheme for Exporters (CGSE) executed through the Export Credit Guarantee Corporation (ECGC).

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (a)

Detailed Explanation:

- **Statement 1 is correct:** The EPM was introduced in the Union Budget 2025–26 as a multi-year, mission-mode national framework spanning from FY 2025–26 to FY 2030–31 to boost the competitive edge of Indian exporters.
- **Statement 2 is correct:** The platform is digitally driven, bringing together multiple fragmented trade-support channels under the Directorate General of Foreign Trade (DGFT) as the main regulatory and implementation node.
- **Statement 3 is incorrect:** Although the EPM features a ₹20,000 crore Credit Guarantee Scheme for Exporters (CGSE) to deliver 100% government-backed, collateral-free credit, this specific sub-component is operationalized through the National Credit Guarantee Trustee Company (NCGTC).

4. Consider the following statements regarding the Production-Linked Incentive (PLI) Scheme for White Goods:

1. It is a Central Sector Scheme targeting the domestic component manufacturing ecosystems of Air Conditioners and LED lights.
2. The monitoring authority for this scheme is the Empowered Group of Secretaries (EGoS), which is chaired by the Union Minister of Commerce and Industry.
3. It applies for the duration of FY 2021-22 to FY 2028-29..
4. To maintain open fiscal elasticity, the scheme is built as a demand-driven model with an open-ended financial expenditure.

Which of the statements given above are correct?

- (a) 1 and 3
- (b) 2 and 4 only
- (c) 1, 2 and 3
- (d) 1 and 4 only

Correct Answer: (a)

Detailed Explanation:

- **Statement 1 is correct:** The PLI Scheme for White Goods is a specialized Central Sector Scheme designed to build deep domestic supply chains and eliminate import dependencies by funding core electronic and mechanical sub-assemblies for ACs and LED lights.
- **Statement 2 is incorrect:** While the Ministry of Commerce and Industry oversees development, the monitoring framework sits under the Empowered Group of Secretaries (EGoS), which is chaired by the Cabinet Secretary, not the Union Minister.
- **Statement 3 is correct:** Using FY 2019–20 as the fixed Base Year. The PLI Scheme for White Goods runs from FY 2021-22 to FY 2028-29.

- **Statement 4 is incorrect:** The scheme is strictly fund-limited, not open-ended. The total financial incentives are capped within a fixed, Cabinet-approved structural budget to enforce strict fiscal discipline.

5. Which of the following statements with regard to the 'LEAPS 2025' initiative is/are correct?

1. It is an international tariff-tracking index published jointly by the World Bank and the World Trade Organization to monitor global shipping routes.
2. The administrative registration process for this platform is managed through the corporate portal of the SEBI.

Select the answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (d)

Detailed Explanation:

- **Statement 1 is incorrect:** LEAPS 2025 (Logistics Excellence, Advancement, and Performance Shield) is an indigenous national benchmarking and recognition initiative launched during the 4th Anniversary of PM GatiShakti celebrations in New Delhi to spotlight excellence, ESG compliance, and efficiency inside India's internal logistics space.
- **Statement 2 is incorrect:** Applications and registration protocols for the 13 competitive categories of LEAPS 2025 are organized through the sovereign Rashtriya Puraskar Portal (awards.gov.in) and issued by the DPIIT, Ministry of Commerce and Industry, having no structural link to SEBI.

6. Consider the following statements regarding the Logistics Ease Across Different States (LEADS) 2025 index:

1. It is a national index released by the DPIIT to benchmark supply chain performance across Indian States and UTs.
2. The assessment engine clusters states and UTs into performance-based tiers classified as Leaders, Achievers and Aspirers.
3. It benchmark logistics performance of States/UTs to lower logistics costs and improve efficiency in infrastructure planning and policy reforms.

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 only
- (d) 1, 2 and 3

Correct Answer: (d)

Detailed Explanation:

- **Statement 1 is correct:** The LEADS index is an analytical tool engineered by the DPIIT under the Ministry of Commerce and Industry to assess regulatory, infrastructural, and procedural ease within state-level logistics channels.
- **Statement 2 is correct:** Rather than using a rigid raw numerical ladder, the framework creates competitive peer groups, sorting states into categorical groups: Leaders, Achievers, and Aspirers.

- **Statement 3 is correct:** LEADS 2025 uses advanced tech workflows like API-enabled corridor tracking for real-time speed evaluations on major transport segments. It combines industry perceptions with an automated interactive digital dashboard for live analytics.

7. Consider the following statements regarding the BHARATI initiative:

1. It is a national startup-support and export-acceleration platform launched under the administrative control of the Food Safety and Standards Authority of India (FSSAI).
2. The primary quantifiable target of the platform is to support 100 agri-food startups and help scale India's sector exports to \$50 billion by 2030.
3. The platform's technological mandate focuses on traditional manual grading techniques, avoiding the use of blockchain or AI tools in the supply chain.

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 2 only
- (c) 1 and 3 only
- (d) 2 and 3 only

Correct Answer: (b)

Detailed Explanation:

- **Statement 1 is incorrect:** BHARATI (Bharat's Hub for Agritech, Resilience, Advancement and Incubation for Export Enablement) was set up by APEDA (Agricultural and Processed Food Products Export Development Authority) under the Ministry of Commerce & Industry, not the FSSAI.
- **Statement 2 is correct:** The platform has a clear dual target: to induct a select cohort of 100 agri-food and agritech startups through an incubation path while scaling national export output to hit \$50 billion by 2030.
- **Statement 3 is incorrect:** The framework encourages high-tech integration, favoring startups that build AI-based quality inspections, blockchain-enabled traceability models, and IoT-enabled cold chain systems to address trade challenges like spoilage and quality control.

8. Consider the following statements regarding the Credit Guarantee Scheme for Startups (CGSS):

1. The scheme is operationalized through the National Credit Guarantee Trustee Company (NCGTC) under the Ministry of Commerce and Industry.
2. Venture debt, working capital, optionally convertible debt, and subordinated debt instruments are explicitly eligible for guarantee cover.
3. Eligible for borrowers is DPIIT-recognized startups that are not in default to any lending institution.
4. Non-Banking Financial Companies (NBFCs) are barred from participating as eligible lenders under the scheme's guidelines.

Which of the statements given above are correct?

- (a) 1 and 3
- (b) 2 and 4 only
- (c) 1, 2 and 4
- (d) 1, 2 and 3 only

Correct Answer: (d)

Detailed Explanation:

- **Statement 1 is correct:** The CGSS provides collateral-free credit support to DPIIT-recognized startups. It is run under the regulatory umbrella of the DPIIT and executed by the National Credit Guarantee Trustee Company (NCGTC).

- **Statement 2 is correct:** These exact instruments are explicitly eligible for guarantee cover. Managed by the National Credit Guarantee Trustee Company (NCGTC), the scheme provides collateral-free or partially secured debt funding to DPIIT-recognised startups. The revised scheme limits have been raised from ₹10 crore to ₹20 crore per borrower to better support growth-stage funding demands.
- **Statement 3 is correct:** Eligible borrowers are DPIIT-recognized startups that are not in default to any lending institution. The coverage model matches risk tiers: it covers 85% of the default amount for loans up to ₹10 crore, and drops to 75% for loan allocations between ₹10 crore and ₹20 crore.
- **Statement 4 is incorrect:** NBFCs are not barred. They are fully eligible lenders provided they hold a credit rating of BBB and above with a net worth of at least ₹100 crore. Scheduled commercial banks and SEBI-registered AIFs are also eligible.

9. Which of the following statements with regard to The Sanchar Mitra Scheme is/are correct?

1. It is a volunteer-based digital outreach initiative launched by the Ministry of Communications, Department of Telecommunications (DoT).
2. University students from telecom, electronics, computer science, and cybersecurity streams are nominated as Sanchar Mitras.

Select the answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (c)

Detailed Explanation:

- **Statement 1 is correct:** The Sanchar Mitra Scheme is a specialized digital hygiene and outreach campaign launched by the DoT to build public awareness around cyber fraud, telecom safety, and 5G/6G systems.
- **Statement 2 is correct:** The campaign focuses on mobilizing youth talent for hardware maintenance. It fields university students from streams like cybersecurity, electronics, and computer science as Sanchar Mitras to run local digital safety clinics.

10. Consider the following statements regarding the 'Gyan Post' Service:

1. It is an urban-centered express courier service developed by the Ministry of Culture to ship commercial magazines at standard tariff rates.
2. The pricing structure for this service is built as a slab-based or weight-based tiered pricing model.
3. The service allows for eligible materials like non-commercial educational books and study materials.
4. The permissible weight envelope for a Gyan Post shipment parcel is bound between a minimum of 300 grams and a maximum of 5 kilograms.

Which of the statements given above are correct?

- (a) 1 and 2
- (b) 2, 3 and 4 only
- (c) 1, 3 and 4
- (d) 1 and 4 only

Correct Answer: (b)

Detailed Explanation:

- **Statement 1 is incorrect:** Gyan Post is run by the Department of Posts, Ministry of Communications. It is designed to offer subsidized, last-mile delivery of non-commercial educational materials across both rural and urban areas. It explicitly bans advertisements and commercial publications.
- **Statement 2 is correct:** The service utilizes a slab-based or weight-tiered pricing layout to ensure low, predictable shipping costs for academic and cultural literature.
- **Statement 3 is correct:** To prevent commercial abuse, items must carry the publisher's imprint, allow easy inspection by postal workers (via unsealed wrapping), and contain no personal letters or promotional flyers.
- **Statement 4 is correct:** The regulatory criteria enforce strict shipping boundaries, capping parcel sizes with a minimum weight threshold of 300 grams and a maximum ceiling of 5 kilograms.

Defense News

1. Consider the following statements regarding the PRAHAAR strategy:

1. It is India's first publicly articulated National Counter-Terror Strategy released by the Ministry of Home Affairs.
2. The core framework defines and links terrorism to specific regional identities to enhance targeted profiling.
3. It utilizes a seven-pillar model that incorporates a whole-of-society approach alongside human rights and rule of law-based processes.

How many of the above statements are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All three

Correct Answer: (b)

Detailed Explanation:

- **Statement 1 is correct:** PRAHAAR was officially released by the Ministry of Home Affairs (MHA) as India's first comprehensive, publicly articulated National Counter-Terror Strategy.
- **Statement 2 is incorrect:** The strategy explicitly avoids linking terrorism with any specific religion, identity, or community, maintaining a strictly neutral and professional focus on threat perception.
- **Statement 3 is correct:** The framework is structured around seven distinct pillars including prevention, responses, internal capacity synergy, human rights/rule of law, radicalization mitigation, international cooperation, and a whole-of-society recovery approach.

2. Consider the following statements regarding Project Chetak:

1. It is an infrastructure development program implemented under the administrative jurisdiction of the Ministry of Home.
2. The project's primary mandate is to build, upgrade, and maintain strategic border roads across Rajasthan, Punjab, and northern Gujarat.
3. It is executed by the Border Roads Organisation (BRO), which was brought fully under the Ministry of Defence in the year 2015.
4. The project's geographic footprint is limited to coastal/maritime security zones, excluding any border road construction.

How many of the above statements are correct?

- (a) Only one

- (b) Only two
- (c) Only three
- (d) All four

Correct Answer: (b)

Detailed Explanation:

- **Statement 1 is incorrect:** Project Chetak is executed by the Border Roads Organisation (BRO), which operates entirely under the administrative control of the Ministry of Defence.
- **Statement 2 is correct:** The project is dedicated to fortifying India's western frontier, maintaining strategic feeder lines to the International Border across Rajasthan, Punjab, and northern Gujarat.
- **Statement 3 is correct:** Established on May 7, 1960, the BRO was historically funded through separate civilian channels but was brought completely under the Ministry of Defence in 2015 to streamline strategic border infrastructure.
- **Statement 4 is incorrect:** Project Chetak is explicitly a land-based frontier road-building mechanism covering over 4,000 km of roads and 214 km of ditch-cum-bund installations. It is not a maritime security project.

3. With reference to the Pinaka Multi Barrel Rocket Launcher system, consider the following statements:

1. The platform is developed indigenously by the DRDO's ARDE.
2. The baseline Pinaka Mk-I variant has an operational strike range of 100 km.

Select the correct answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Detailed Explanation:

- **Statement 1 is correct:** Pinaka is a battle-proven, all-weather, indirect-fire artillery system designed and engineered by the DRDO's ARDE laboratory to saturate area targets rapidly.
- **Statement 2 is incorrect:** The baseline Pinaka Mk-I variant has an operational range of 38 km (originally 37.5 km). It is the new, distinct *Pinaka Long Range Guided Rocket (LRGR-120)* variant that is undergoing testing to reach the 120 km threshold.

4. This Medium Altitude Long Endurance (MALE) Unmanned Aerial Vehicle (UAV) is capable of reaching an altitude of 35,000 feet, maintaining an airspeed of 150 knots, and remaining airborne for up to 45 consecutive hours. It is primarily utilized for Intelligence, Surveillance, and Reconnaissance (ISR) missions and is manufactured by Israel Aerospace Industries (IAI). Identify this system:

- (a) Heron Mark-II
- (b) Predator B (MQ-9B)
- (c) Ruston-2
- (d) Tapas-BH-201

Correct Answer: (a)

Detailed Explanation:

- **Option (a) is correct:** The provided performance metrics (35,000 feet ceiling, 150 knots speed, 45-hour maximum flight endurance, and half-tonne payload capacity) specifically define the Heron Mark-II.

II MALE UAV manufactured by Israel Aerospace Industries (IAI), which India plans to procure and locally manufacture.

5. Consider the following statements regarding the Long Range Anti-Ship Hypersonic Missile (LR-AShM) unveiled by DRDO:

1. It features a delta-wing design capable of conducting quasi-ballistic flight paths with low-altitude, mid-course maneuvers.
2. The system achieves a peak velocity of Mach 2, dropping down to sub-sonic speeds during its final glide phase.
3. For terminal homing on moving targets at extended ranges, the missile integrates an X-band radar seeker.

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 3 only
- (d) 1, 2 and 3

Correct Answer: (b)

Detailed Explanation:

- **Statement 1 is correct:** The LR-AShM uses a sophisticated delta-wing profile to enable high-speed aerodynamic lift, allowing it to perform unexpected mid-air skips and low-altitude terrain masking maneuvers.
- **Statement 2 is incorrect:** The missile is a true hypersonic system powered by a two-stage solid rocket motor that achieves a peak velocity of Mach 10 and maintains a hypersonic glide profile exceeding Mach 5+.
- **Statement 3 is correct:** To locate and lock onto complex moving naval vessels or coastal target arrays up to 1,500 km away, the vehicle deploys a built-in 50 km range X-band radar seeker for precise terminal guidance.

6. Which of the following statements with regard to the Golden Dome missile defense framework is/are correct?

1. It is a multi-layered, global-scale strategic system-of-systems shield officially introduced by the US administration.
2. The system was originally established in the 1980s under the name Iron Dome for America before being re-launched in 2025.

Select the answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Detailed Explanation:

- **Statement 1 is correct:** The Golden Dome is a high-profile multi-layered defensive shield designed by the US administration to provide near-100% interception protection against incoming ballistic, cruise, and hypersonic missiles.

- **Statement 2 is incorrect:** The project was announced recently in January 2025 via an executive order, initially labeled as the Iron Dome for America. It was shortly renamed the Golden Dome to mirror the global, grand scale of Ronald Reagan's 1980s Strategic Defense Initiative (SDI).

7. Which of the following statements with regard to India's indigenous Man Portable Anti-Tank Guided Missile (MPATGM) is/are correct?

1. It is a third-generation, fire-and-forget weapon system incorporating both top-attack and direct-attack capabilities.
2. The missile is equipped with a miniaturized Imaging Infrared (IIR) seeker to support full day-and-night combat.

Select the answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (c)

Detailed Explanation:

- **Statement 1 is correct:** The MPATGM is a 3rd-generation, fire-and-forget armor-piercing system engineered indigenously by the DRDO for infantry and special forces, featuring specialized top-attack flight modes to target the vulnerable upper armor of tanks.
- **Statement 2 is correct:** To achieve autonomous tracking without continuous operator wire-guidance after launch, it utilizes an advanced, integrated day/night passive Imaging Infrared (IIR) terminal target seeker. Both statements are entirely correct.

8. Consider the following statements regarding the Bhairav Battalions of the Indian Army:

1. They are specialized light combat units introduced to bridge the operational gap between standard infantry and elite Para Special Forces.
2. Each Bhairav Battalion operates as a massive structural formation consisting of a minimum of 100 highly trained combat personnel.
3. These units are operationally paired with integrated, all-arms 'Rudra Brigades' combining artillery, armor, drones, and logistics.

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 3 only
- (d) 1, 2 and 3

Correct Answer: (b)

Detailed Explanation:

- **Statement 1 is correct:** Bhairav Battalions were conceived by Army Headquarters as highly agile, high-speed offensive tools to execute special-forces-style operations throughout tactical and operational depths.
- **Statement 2 is incorrect:** These are lean, specialized light tactical groups. Each individual Bhairav Battalion contains a compact complement of around 250 personnel drawn across multiple arms.
- **Statement 3 is correct:** To maximize cross-domain combat lethality, these battalions are supported by the newly formed Rudra Brigades—integrated all-arms networks that bind infantry, armor, artillery, and unmanned aerial surveillance into a unified front.

9. Consider the following statements regarding the Oreshnik missile system:

1. It is an intermediate-range ballistic missile (IRBM) developed and deployed by the Russian Federation.
2. The platform is capable of flying at hypersonic speeds, with velocity estimates reaching Mach 5 to Mach 10+.
3. It has a nuclear-capable operational architecture with the capability to modify its flight trajectory mid-course.

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 only
- (d) 1, 2 and 3

Correct Answer: (d)

Detailed Explanation:

- **Statement 1 is correct:** The Oreshnik is a Russian intermediate-range ballistic missile (IRBM) derived from the RS-26 Rubezh design that was recently deployed in active regional conflict zones.
- **Statement 2 is correct:** The missile is built to easily penetrate air defense networks, traveling at hypersonic speeds ranging from entry levels of Mach 5 to peak tracking velocities exceeding Mach 10.
- **Statement 3 is correct:** The weapon system is highly versatile; it is structurally nuclear-capable (while accepting conventional warheads) and can adjust its terminal and mid-course trajectories dynamically to evade modern interceptor batteries. All statements are correct.

10. Consider the following statements regarding the National Improvised Explosive Device Data Management System (NIDMS):

1. It is a secure, digital multi-agency platform tracking and compiling historical blast incident records in India dating back to 1999.
2. The physical and operational command headquarters of NIDMS is established at the NSG garrison in Manesar, Haryana.
3. The system operates under the exclusive administrative jurisdiction of the Ministry of Defense.

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 only
- (d) 1, 2 and 3

Correct Answer: (a)

Detailed Explanation:

- **Statement 1 is correct:** NIDMS is a unique national forensic platform engineered to break down institutional information silos by mapping out signature linking, explosive profiles, and modus operandi of all domestic bomb blasts since 1999.
- **Statement 2 is correct:** The specialized system is housed at the National Security Guard (NSG) center in Manesar, allowing state police teams and central forces to query historical post-blast data patterns.
- **Statement 3 is incorrect:** NIDMS was inaugurated by the Union Home Minister and functions directly under the administrative ambit of the Ministry of Home Affairs (MHA), leveraging the NSG as the premier national counter-terror and post-blast analysis node.

Defense News-I

1. Which of the following statements regarding the features of the Discombobulator weapon framework are correct?

1. It operates as an integrated multi-domain system combining directed-energy, acoustic, visual, and electronic warfare capabilities.
2. The Active Denial System sub-component functions as a thermal heat ray designed to cause an intense burning sensation to disperse personnel.
3. The Visual Dazzler component relies on low-frequency acoustic pulses to induce structural target fractures in buildings.
4. The Vortex Ring Generator sub-component uses high-pressure air pulses capable of delivering specialized irritants to disorient personnel.

Select the correct answer using the code given below:

- (a) 1, 2 and 4
- (b) 2 and 4 only
- (c) 1 and 3
- (d) 1 and 4 only

Correct Answer: (a)

Detailed Explanation:

- **Statement 1 is correct:** The "Discombobulator" is understood by defense experts to be a combined "system-of-systems" integrating electronic warfare, cyber, visual, acoustic, and directed-energy mechanisms to disable heavily defended positions.
- **Statement 2 is correct:** The Active Denial System (ADS) is a non-lethal directed-energy weapon that emits a millimeter-wave heating beam to create an immediate, intolerable burning sensation on the skin, causing rapid retreat.
- **Statement 3 is incorrect:** Visual Dazzlers are high-intensity pulsing laser systems, not acoustic tools. They emit bright, concentrated beams of light to temporarily blind and disorient hostile personnel on the battlefield.
- **Statement 4 is correct:** The Vortex Ring Generator uses high-velocity, high-pressure air pulses to strike non-line-of-sight personnel or deploy chemical irritants (like stink bombs) to trigger nausea and disorientation.

2. Consider the following statements with regard to the Suryastra rocket system:

1. It is India's first indigenous, universal multi-calibre long-range rocket launcher system designed for precision surface-to-surface strikes.
2. The system has been inducted into the Indian Army through an emergency procurement contract signed with DRDO.
3. The launcher is structurally restricted to stationary concrete pads and can be adapted to wheeled vehicular platforms.

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 1 only
- (d) 1, 2 and 3

Correct Answer: (b)

Detailed Explanation:

- **Statement 1 is correct:** Suryastra is a multi-calibre system engineered to execute precision surface-to-surface ballistic strikes at ranges spanning 150 km and 300 km.
- **Statement 2 is incorrect:** The Indian Army prioritized its deployment through a ₹293-crore emergency procurement contract executed with NIBE Ltd. in an industrial partnership with Elbit Systems.
- **Statement 3 is correct:** The platform is designed for high tactical mobility. It is fully adaptable to multiple wheeled tactical truck platforms including 4×4, 6×6, and 8×8 configurations.

3. Consider the following statements with regard to the Direct Firing Sight Navigation System (DFSNS):

1. It is a joint artillery navigation and targeting package produced through an industrial agreement signed between India and France.
2. The system integrates Safran's SIGMA 30N inertial navigation system, enabling full autonomous positioning and firing in GPS-denied environments.
3. It incorporates the CM3-MR direct firing sight utilizing thermal and optical tracking to engage visible targets and anti-drone defenses.

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 only
- (d) 1, 2 and 3

Correct Answer: (d)

Detailed Explanation:

- **Statement 1 is correct:** India and France signed a strategic industrial agreement to jointly manufacture the DFSNS package within India.
- **Statement 2 is correct:** Its core localization layout uses the SIGMA 30N ring laser gyroscope inertial unit, allowing artillery batteries to orient and compute fire solutions without needing satellite GPS input.
- **Statement 3 is correct:** The targeting engine utilizes the CM3-MR sight, which gives heavy artillery and air defense assets the direct thermal and optical visibility required to track and down small targets, such as low-flying drones.

4. Which of the following statements regarding the features of Solid Fuel Ducted Ramjet (SFDR) technology are correct?

1. It is an advanced air-breathing missile propulsion technology successfully flight-demonstrated by the DRDO.
2. The propulsion architecture entirely eliminates the need to carry solid fuel inside the missile body.
3. It uses atmospheric oxygen during flight for fuel combustion, which reduces the missile's payload weight footprint.
4. The system includes a solid-fuel booster to accelerate the missile to supersonic speeds during its initial phase.

Select the correct answer using the code given below:

- (a) 1 and 3
- (b) 2 and 4 only
- (c) 1, 3 and 4
- (d) 1 and 4 only

Correct Answer: (c)

Detailed Explanation:

- **Statement 1 is correct:** SFDR is a key breakthrough developed by the DRDO to enable India to build long-range, high-speed air-to-air missile systems.
- **Statement 2 is incorrect:** SFDR does carry solid fuel; it eliminates the need to carry a heavy *oxidizer* by pulling in oxygen directly from the surrounding atmosphere.
- **Statement 3 is correct:** By capturing atmospheric oxygen through specialized intake ducts, it reduces the size and weight of the propulsion section, allowing more space for an effective warhead.
- **Statement 4 is correct:** Because ramjets cannot generate static thrust from a standstill, the missile requires an integrated nozzle-less solid booster to push it up to the supersonic speeds needed for the ramjet to take over.

5. Consider the following pairs matching Iranian air defense assets with their features:

System	Classification & Functionality
1. Bavar-373	Iran's most advanced long-range system; utilizes the Sayyad-4B missile.
2. Arman System	Medium-range system explicitly designed with 360° radar coverage.
3. Sevom-e-Khordad	Highly mobile anti-cruise system utilizing Sayyad-3 missiles.
4. Tor-M1	Domestically engineered Iranian hypersonic long-range space interceptor.

How many of the above pairs are correctly matched?

- (a) Only one pair
(b) Only two pairs
(c) Only three pairs
(d) All four pairs

Correct Answer: (c)

Detailed Explanation:

- **Pair 1 is correctly matched:** The Bavar-373 is Iran's flagship long-range surface-to-air defense asset. It utilizes the Sayyad-4B missile and claims an interception envelope extending past 300 km.
- **Pair 2 is correctly matched:** The Arman system is a newer medium-range asset engineered with a built-in 360-degree radar configuration to protect against low-altitude ballistic threats.
- **Pair 3 is correctly matched:** The Sevom-e-Khordad is a mobile, quick-reaction air defense launcher that fires Sayyad-3 missiles, deployed to protect sensitive nuclear infrastructure sites such as Natanz and Isfahan.
- **Pair 4 is incorrectly matched:** The Tor-M1 is a Russia-made, short-range defense system acquired by Iran to shoot down incoming guided munitions, precision drones, and cruise missiles. It is not an indigenous Iranian hypersonic space interceptor.

6. Consider the following pairs matching strategic air defense platforms with their operational roles:

Interceptor System	Operational Specialty & Design
1. Arrow 3	Israeli exo-atmospheric system designed to intercept long-range missiles in space.

2. SM-3	US Navy interceptor that uses kinetic impact without an explosive warhead.
3. THAAD	US system designed to intercept targets inside the lower atmosphere.
4. David's Sling	Israeli platform designed to bridge the gap between long and short-range defense.

How many of the above pairs are correctly matched?

- (a) Only one pair
- (b) Only two pairs
- (c) Only three pairs
- (d) All four pairs

Correct Answer: (c)

Detailed Explanation:

- **Pair 1 is correctly matched:** Israel's Arrow 3 is engineered to track and destroy incoming long-range ballistic missiles in space prior to atmospheric re-entry, forming the outermost tier of its layered defense.
- **Pair 2 is correctly matched:** The Aegis-based SM-3 operates as a hit-to-kill naval interceptor, destroying short-to-intermediate range ballistic threats outside the atmosphere using pure kinetic energy.
- **Pair 3 is incorrectly matched:** THAAD (Terminal High Altitude Area Defense) is unique because it is the only US platform engineered to defeat ballistic targets both outside (exo-atmospheric) and inside (endo-atmospheric) the atmosphere during their terminal phase.
- **Pair 4 is correctly matched:** David's Sling (utilizing the Stunner interceptor) handles medium-range ballistic threats, heavy rockets, and cruise missiles, filling the mid-tier defense layer.

7. Which of the following statements regarding the features of conventional gravity bombs are correct?

1. A baseline gravity bomb lacks an internal engine or integrated propulsion system following release.
2. The flight path of an unguided gravity bomb is dictated by aircraft speed, release angle, altitude, and ballistics.
3. The integration of a Joint Direct Attack Munition (JDAM) kit converts an unguided bomb into a precision-guided munition.
4. The JDAM tail kit adds GPS navigation data routes and steerable aerodynamic tail fins to control the bomb's glide path.

Select the correct answer using the code given below:

- (a) 1 and 3
- (b) 2 and 4 only
- (c) 1, 2 and 4
- (d) 1, 2, 3 and 4

Correct Answer: (d)

Detailed Explanation:

- **Statements 1 and 2 are correct:** Conventional gravity bombs (or "dumb bombs") carry no on-board propulsion machinery. They rely strictly on initial momentum from the carrier aircraft and gravitational pull, requiring computerized release calculations from the cockpit to achieve target hits.

- **Statements 3 and 4 are correct:** When a mechanical JDAM tail assembly kit is attached to a standard gravity bomb, it upgrades the unguided munition into a smart weapon. It introduces a GPS-aided inertial guidance package and steerable tail fins that actively correct the bomb's trajectory mid-air.

8. Consider the following statements with regard to the naval vessel Malwan:

1. It is the second of eight Anti-Submarine Warfare Shallow Water Crafts (ASW SWCs) indigenously designed and built by Cochin Shipyard Limited (CSL).
2. The vessel utilizes a nuclear steam propulsion loop to maximize deep-sea blue-water endurance.
3. The ship's operational profile is strictly limited to helicopter logistics, completely excluding underwater surveillance or mine warfare capabilities.

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 only
- (d) 1, 2 and 3

Correct Answer: (c)

Detailed Explanation:

- **Statement 1 is correct:** The *Malwan* is an ASW SWC vessel engineered with over 80% domestic material content by Cochin Shipyard Limited (CSL), Kochi, under the Aatmanirbhar Bharat framework.
- **Statement 2 is incorrect:** It does not use a nuclear propulsion system. It is fitted with an advanced waterjet propulsion configuration to provide the high agility and shallow draft required for coastal littoral combat.
- **Statement 3 is incorrect:** The vessel is built for sub-surface defense. Its multi-role profile includes underwater surveillance, anti-submarine warfare (ASW), coastal defense patrolling, low-intensity maritime operations (LIMO), and mine warfare.

9. Consider the following statements with regard to the INS Aridhaman submarine:

1. It is India's third indigenously built nuclear-powered ballistic missile submarine (SSBN) developed under the Advanced Technology Vessel (ATV) project.
2. The vessel features a specialized 83 MW pressurized water reactor designed by the Bhabha Atomic Research Centre (BARC).
3. The submarine's launch tubes are restricted to carrying short-range torpedoes, making it incapable of launching K-4 ballistic missiles.

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 only
- (d) 1, 2 and 3

Correct Answer: (a)

Detailed Explanation:

- **Statement 1 is correct:** INS Aridhaman (designated S4) follows INS Arihant and INS Arighaat as India's third indigenous nuclear-powered SSBN built at the Ship Building Centre (SBC) in Visakhapatnam.
- **Statement 2 is correct:** The propulsion backbone of this 7,000-tonne vessel relies on an indigenous 83 MW pressurized water nuclear reactor engineered by BARC.

- **Statement 3 is incorrect:** The submarine features expanded vertical launch capabilities compared to earlier units, and is built to launch long-range nuclear-tipped missiles, including both the K-15 (750 km range) and the K-4 (3,500 km range) ballistic missiles.

10. Which of the following statements with regard to modern battlefield defense systems is/are correct?

1. The Iron Beam system is an Israeli 100-kilowatt high-energy laser weapon designed to counter drones and short-range threats with near-zero cost per interception.
2. The Cheongung II system deployed by the UAE is an unguided, stationary rocket battery that lacks radar tracking systems.

Select the answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Detailed Explanation:

- **Statement 1 is correct:** Israel's Iron Beam utilizes a 100-kilowatt high-energy laser beam to engage drones, mortar rounds, and small rocket threats. Because it relies on electric power rather than physical missiles, it provides a virtually unlimited magazine at a minimal cost per shot.
- **Statement 2 is incorrect:** The South Korean Cheongung II is a highly advanced surface-to-air missile defense system that provides full 360-degree radar tracking and engagement coverage.

Defense and Security News-II

1. Which of the following statements with regard to India's intelligence-sharing mechanism, the Multi Agency Centre (MAC), is/are correct?

1. It functions under the administrative control of the National Security Council Secretariat under the PMO.
2. It was established in 2001 as part of structural security reforms recommended following the Kargil conflict.

Select the answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer: (b)

Explanation:

- **Statement 1 is incorrect:** The Multi Agency Centre (MAC) functions under the Intelligence Bureau (IB) within the Ministry of Home Affairs (MHA), not under the NSCS or PMO. It serves as India's premier intelligence fusion hub, coordinating central and state security entities.
- **Statement 2 is correct:** The platform was originally conceived and established in 2001 based on the recommendations of the Group of Ministers set up after the Kargil conflict. Its framework was subsequently upgraded and strengthened heavily following the 2008 Mumbai terror attacks to enable seamless, real-time secure communication and data-sharing.

2. Consider the following statements regarding the Central Armed Police Forces (CAPFs) in India:

1. The Supreme Court has legally classified CAPF Group A officers as an Organised Service, granting them parity benefits such as Non-Functional Financial Upgradation (NFFU).
2. All seven major CAPFs, including the Assam Rifles, operate entirely under the executive control of the Ministry of Home Affairs.
3. Under Constitution, CAPFs are classified as “other armed forces of the Union” under the Union List of the Seventh Schedule.

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer: (c)

Explanation:

- **Statement 1 is correct:** The landmark Supreme Court ruling formally recognized CAPFs as Organised Group A Central Services, paving the way for financial upgrades (NFFU), structured career progressions, and a progressive reduction of IPS depulations at top command echelons.
- **Statement 2 is incorrect:** Out of the seven forces, the Assam Rifles (AR) features a unique dual control framework. While its administrative control lies with the Ministry of Home Affairs (MHA), its operational control is handled by the Ministry of Defence (MoD). The remaining six forces operate strictly under the MHA.
- **Statement 3 is correct:** CAPFs are placed under Entry 2 of the Union List (List I) as part of the armed forces of the Union. Their deployment across states is structurally tethered to Article 355 obligations of the Constitution.

3. With reference to the Fugitive Economic Offenders (FEO) Act, 2018, consider the following statements:

1. An individual can be designated as an FEO only if an Indian court has issued an arrest warrant for a scheduled offence of Rs 100 crore.
2. The Enforcement Directorate (ED) is the apex statutory investigation agency empowered to file applications before a Special Court to declare an individual an FEO.
3. Upon a formal declaration as an FEO, the Special Court is legally empowered to confiscate any properties of the offender, located both within India and abroad.

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 only
- (d) 1, 2 and 3

Answer: (d)

Explanation:

- **Statement 1 is correct:** The legal floor limit to trigger proceedings under the FEO Act, 2018 is strictly fixed at **Rs 100 crore or more**, coupled with the condition that the individual has fled the sovereign borders of India and explicitly refuses to return for criminal prosecution.
- **Statement 2 is correct:** The Enforcement Directorate (ED) acts as the primary agency to gather intelligence, list out the suspected proceeds of crime, track the individual's locations, and move the formal declaration application before the designated PMLA Special Court.

- **Statement 3 is correct:** A major feature of the Act is that declaration permits immediate attachment and absolute confiscation of properties, including non-tainted personal properties and those located in foreign jurisdictions.

4. Which of the following statements with regard to the newly commissioned naval vessel, INS Mahe, is/are correct?

1. It is the largest Indian warship to feature advanced diesel engine–waterjet propulsion systems.
2. It was indigenously designed and manufactured by Mazagon Dock Shipbuilders Limited (MDL).

Select the answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer: (a)

Explanation:

- **Statement 1 is correct:** INS Mahe is a pioneering platform under the Anti-Submarine Warfare Shallow Water Craft (ASW-SWC) project. It holds the operational distinction of being the largest Indian surface combatant powered by an indigenous diesel engine–waterjet propulsion configuration tailored for high-speed littoral maneuvers.
- **Statement 2 is incorrect:** The warship was designed, engineered, and manufactured by Cochin Shipyard Limited (CSL), not Mazagon Dock Shipbuilders Limited (MDL).

5. Consider the following statements regarding the newly developed Man-Portable Autonomous Underwater Vehicles (MP-AUVs):

1. They are lightweight robotic systems engineered to be manually deployed for mine countermeasure (MCM) operations.
2. The platform is embedded with deep-learning algorithms for automatic and autonomous target classification of Mine-Like Objects (MLOs).
3. The technology has been developed indigenously by the Defence Avionics Research Establishment, Bengaluru.

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer: (a)

Explanation:

- **Statement 1 is correct:** MP-AUVs are man-portable, compact robotic designs built for rapid operational deployment by field personnel. They mitigate dangerous risk profiles during maritime Mine Countermeasure (MCM) actions.
- **Statement 2 is correct:** These systems optimize seabed data using integrated deep-learning algorithms alongside side-scan sonar arrays to classify and flag Mine-Like Objects (MLOs) autonomously in real-time.
- **Statement 3 is incorrect:** The technology was developed by the Naval Science and Technological Laboratory (NSTL) based out of Visakhapatnam, which works under the umbrella of DRDO, rather than DARE Bengaluru (which focuses on airborne electronic warfare).

6. Which of the following statements with regard to the Burevestnik missile is/are correct?

1. It is a nuclear-powered and nuclear-armed ballistic missile capable of executing high-altitude exo-atmospheric strikes.
2. It uses a compact nuclear reactor for propulsion, providing it with an effectively unlimited flight range.

Select the answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer: (b)

Explanation:

- **Statement 1 is incorrect:** The Burevestnik (NATO reporting name: Storm Petrel) is a **cruise missile**, not a ballistic missile. Unlike ballistic trajectories, cruise missiles rely on aerodynamic lift via jet components to remain airborne and fly at exceptionally low altitudes to slip beneath early warning air defence radars.
- **Statement 2 is correct:** By harboring a miniature onboard nuclear reactor core to heat intake air for long-sustained thermal propulsion, the missile theoretically possesses unlimited range, allowing it to navigate around entire continents for days before hitting its designated target area.

7. Consider the following statements regarding the proposed Bureau of Port Security (BoPS):

1. It is envisioned as a statutory body to be constituted under the administrative domain of the Ministry of Ports, Shipping and Waterways (MoPSW).
2. The architectural model of the bureau is structurally patterned on the operational lines of the Bureau of Civil Aviation Security (BCAS).

Select the answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer: (c)

Explanation:

- **Statement 1 is correct:** The Bureau of Port Security (BoPS) will be set up as a formal statutory body under Section 13 of the Merchant Shipping Act. It will function directly under the executive purview of the Ministry of Ports, Shipping and Waterways (MoPSW) to enforce uniform, risk-mitigated maritime infrastructure protocols.
- **Statement 2 is correct:** The conceptual framework, security audit patterns, and operational mandates of BoPS are directly mirrored after the aviation security watchdog the Bureau of Civil Aviation Security (BCAS) with an IPS officer at its apex heading the organization.

8. Consider the following statements regarding the National Intelligence Grid (NATGRID) and the National Population Register (NPR):

1. NATGRID is an attached office under the MeitY.
2. The databases under NATGRID are completely exempt from the disclosure mandates of the RTI Act, 2005.
3. The NPR is an identities database compiled strictly under the statutory provisions of the Registration of Births and Deaths Act, 1969.

4. Registration of demographic details within the NPR framework is legally compulsory for every usual resident of India.

Select the answer using the code given below:

- (a) 1 and 3
(b) 2 and 4 only
(c) 1, 2 and 3
(d) 1 and 4 only

Answer: (b)

Explanation:

- **Statement 1 is incorrect:** NATGRID is an attached office operating under the Ministry of Home Affairs (MHA), not MeitY. It is designed to act as a secure core data integration tool to pull down information silos across core enforcement entities.
- **Statement 2 is correct:** NATGRID is explicitly categorized under Section 24 of the **RTI Act, 2005** alongside intelligence and security organizations, shielding its contents from transparency requests except for instances concerning human rights violations or corruption.
- **Statement 3 is incorrect:** The NPR is established and maintained under the explicit legal powers of the Citizenship Act, 1955 and the Citizenship (Registration of Citizens and Issue of National Identity Cards) Rules, 2003, not the Registration of Births and Deaths Act.
- **Statement 4 is correct:** Under the Citizenship Rules, it is statutorily mandatory for every "usual resident" (defined as a individual living or intending to live in a given locality for a rolling period of six months or more) to register within the NPR.

9. Consider the matching pairs between Defense System/Platform and their corresponding Key Features/Developer:

System / Platform	Key Feature and Developer
1. Integrated Air Command and Control System (IACCS)	Integrates ground, airborne, and civilian radars to map a total battlefield picture; developed by Bharat Electronics Limited.
2. Mission Control Centre (MCC) - BMD Network	Interfaces with upgraded long-range tracking radars (Swordfish) to track threats; collaborative development involving DRDO, IAF, and Israel.
3. Akashteer	Provides automated, low-level airspace defense control for ground-based elements; developed by the Indian Navy.
4. TRIGUN	Real-time maritime threat monitoring network integrating sea-based radars and sonar networks; developed indigenously by the Indian Navy.

How many of the pairs given above are correctly matched?

- (a) Only one pair
(b) Only two pairs
(c) Only three pairs
(d) All four pairs

Answer: (c)

Explanation:

- **Pair 1 is correctly matched:** The IACCS serves as the spine of IAF's network-centric warfare capabilities, stitching distinct sensor inputs across civilian and military sectors together via BEL.
- **Pair 2 is correctly matched:** The MCC is the central node of India's Ballistic Missile Defence system. It tracks exo and endo-atmospheric objects using the upgraded Swordfish tracking radars (with an enhanced tracking signature range of up to 1,500 km), backed by joint software components from DRDO, the IAF, and Israel.
- **Pair 3 is incorrectly matched:** While the system's operational scope (low-level airspace automated coordination) is correct, Akashteer was developed by Bharat Electronics Limited (BEL) for the Indian Army.
- **Pair 4 is correctly matched:** TRIGUN is a dedicated situational domain-awareness platform engineered indigenously by the Indian Navy to process raw multi-sensor ocean data.

10. Consider the matching pairs between Air Defense Systems and their corresponding operational profiles/origins:

System / Platform	Key Feature and Developer / Origin
1. D4 System	Drone mitigation system using a dual-layer kill mechanism (Laser Hard Kill and RF/GPS Jamming Soft Kill); developed by DRDO and produced by BEL.
2. L/70 Anti-Aircraft Gun	40 mm radar-guided tactical autocannon with auto-tracking systems; originally designed by Bofors (Sweden) and manufactured in India.
3. ZU-23 mm Gun	Twin-barreled tactical anti-aircraft autocannon designed for static and mobile defensive deployments; developed by Russia.
4. Shilka (ZSU-23-4)	Self-propelled, radar-guided anti-aircraft system equipped with a 360-degree coverage 3rd-generation electro-optical tracking system; originated from Russia.

How many of the pairs given above are correctly matched?

- (a) Only one pair
(b) Only two pairs
(c) Only three pairs
(d) All four pairs

Answer: (c)

Explanation:

- **Pair 1 is correctly matched:** The Drone Detect, Deter, and Destroy (D4) system is India's premier multi-tier drone countermeasure package utilizing laser directed-energy for mechanical destruction and frequency jamming for disruption.
- **Pair 2 is correctly matched:** The vintage but heavily upgraded L/70 air defense gun utilizes integrated electro-optical fire control tracking radars and fires up to 240–330 rounds per minute, stemming from Sweden's Bofors legacy.
- **Pair 3 is incorrectly matched:** The ZU-23-2 twin-barrel autocannon was designed and widely fielded by the **Soviet Union**, not modern Russia. (Note: While Russia inherited the tech, historical and specific military production datasets trace its origin explicitly to the Soviet Union epoch).

- **Pair 4 is correctly matched:** The ZSU-23-4 Shilka is a highly mobile, radar-guided tracked anti-aircraft asset upgraded with phased-array tracking tools, originating out of Russia/Soviet lineage to insulate mobile field armor units from low-flying ground attack aircraft.

Defense and Security News-III

1. Consider the following structural and operational capabilities:

1. Performing long-range supercruise maneuvers without the use of afterburners.
2. Storing heavy operational payloads inside a dedicated internal weapons bay to minimize radar cross-section.
3. Conducting vertical take-off and landing operations directly from small naval offshore patrol vessels.

At the present level of design specifications, which of the above capabilities are intended to be successfully carried out by India's indigenously developed Advanced Medium Combat Aircraft (AMCA)?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer: (a)

Explanation:

- **Statement 1 is correct:** The AMCA is designed with supercruise capability, which allows the fifth-generation fighter jet to maintain sustained supersonic speeds (approx. Mach 2.15 maximum) without engaging fuel-heavy afterburners.
- **Statement 2 is correct:** To maintain a low radar cross-section (stealth feature), the AMCA features an internal weapons bay capable of carrying 1,500 kg of payload out of its total weapon capacity.
- **Statement 3 is incorrect:** The AMCA is a conventional twin-engine medium-weight fighter jet designed for conventional airfields and regular aircraft carriers. It does not possess Vertical Take-Off and Landing (VTOL) capabilities, which are restricted to specialized aircraft like the F-35B or Harrier jets.

2. Consider the following operational tracking and engagement scenarios:

1. Executing low-altitude sea-skimming flight paths at 3 to 10 meters above the surface to evade naval radar tracking.
2. Delivering precise hypersonic strikes against targets at speeds continuously exceeding Mach 7.
3. Launching precision tactical strikes from underwater submarine platforms.

In how many of the above operational scenarios can the existing operational variants of the BrahMos cruise missile be successfully used?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Answer: (b)

Detailed Explanation:

- **Scenario 1 is correct:** The BrahMos supersonic cruise missile utilizes an advanced low-altitude flight profile, skimming as low as 3–10 meters above sea level to remain beneath the detection horizon of enemy warship radars.

- **Scenario 2 is incorrect:** The current operational versions of BrahMos are supersonic cruise missiles operating at speeds around Mach 3. Hypersonic flight (exceeding Mach 5–7) is a feature intended for the future *BrahMos-II* variant, which is still in the design and development phase, not current operational variants.
- **Scenario 3 is correct:** BrahMos is a highly versatile multi-platform missile that is actively configured to be launched from land-based mobile launchers, surface warships, fighter aircraft (Su-30MKI), and underwater submarines.

3. Consider the following statements:

1. The Golden Dome is a space- and ground-based multi-layered missile defense initiative by the U.S to counter hypersonic and cruise missile threats.
2. Unlike the THAAD system which targets endo-atmospheric threats, the Golden Dome relies on low-altitude tactical man-portable air defense units.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer: (a)

Explanation:

- **Statement 1 is correct:** The Golden Dome is a strategic initiative announced by the US administration to integrate existing and new layered defenses (including space-based tracking sensors and interceptors) to safeguard against modern hypersonic and cruise missile vectors.
- **Statement 2 is incorrect:** The Golden Dome does not rely on short-range man-portable systems. Instead, it architecture-links heavy national-tier defense installations, directly leveraging high-altitude assets like THAAD, Patriot missile batteries, Aegis Ballistic Missile Defense, and Ground-based Midcourse Defense (GMD).

4. Consider the following statements:

1. Bhargavastra is an indigenously developed counter-unmanned aerial system (C-UAS) designed primarily as a low-cost "hard kill" solution against drone swarms.
2. It features a single-tier defense architecture consisting of soft-kill electronic jamming and GPS spoofing arrays.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer: (a)

Explanation:

- **Statement 1 is correct:** Bhargavastra is an indigenous micro-missile/micro-rocket anti-drone system designed to act as a hard-kill solution capable of neutralising target drone swarms with a 20-meter lethal blast radius.
- **Statement 2 is incorrect:** Bhargavastra is built on a two-layer hardware system: unguided micro-rockets for mass swarms and guided micro-missiles for precision tracking. While its modular design

can integrate soft-kill measures (jamming/spoofing), its core architecture is distinctly dual-tiered and hard-kill oriented.

5. Which one of the following statements best describes the Multi-Influence Ground Mine (MIGM) tested by the Indian Navy?

- (a) It is a deep-sea autonomous recovery vehicle used to locate black boxes of downed aircraft.
- (b) It is an indigenous underwater naval mine equipped with multi-sensor arrays to detect acoustic, magnetic, and pressure signatures of stealth ships and submarines.
- (c) It is a submarine-launched nuclear torpedo designed for high-speed coastal defense.
- (d) It is a floating harbor defense barrier used to shield naval dockyards from underwater divers.

Answer: (b)

Explanation:

- **Option (b) is correct:** Developed by the Naval Science and Technological Laboratory (NSTL) under DRDO, the MIGM is a sophisticated underwater naval mine. It works passively on the seabed (ground mine) and uses integrated processors to analyze combined acoustic, magnetic, and pressure signatures of passing surface stealth ships or submarines before detonating.

6. Which one of the following statements best describes the HawkEye 360 technology approved for sale to India?

- (a) It is a low-frequency ground penetrating radar network used to map tunnel networks along mountainous borders.
- (b) It is a carrier-borne early warning drone optimized for high-altitude thermal imaging.
- (c) It is a satellite constellation system in Low Earth Orbit that detects, geolocates, and analyzes commercial and military radio frequency (RF) signals.
- (d) It is an encryption protocol used to safeguard secure tactical data links across quad-nation groupings.

Answer: (c)

Explanation:

- **Option (c) is correct:** HawkEye 360 uses clusters of three cluster-linked satellites operating in Low Earth Orbit (LEO) to capture, map, and geolocate Radio Frequency (RF) signals from space. For India, its main utility is maritime domain awareness, exposing dark vessels that intentionally switch off their transponders (Automatic Identification Systems) to illegally fish or smuggle.

7. Which one of the following statements best describes the Igla-S system procured by the Indian Army?

- (a) It is an indigenous anti-tank guided missile system featuring tandem warheads.
- (b) It is a Russian-origin man-portable, shoulder-launched very short-range surface-to-air missile system utilizing infrared homing guidance.
- (c) It is an autonomous tracked combat vehicle designed to clear minefields ahead of armored columns.
- (d) It is a heavy towed artillery system optimized for high-altitude cold-weather combat operations.

Answer: (b)

Detailed Explanation:

- **Option (b) is correct:** The Igla-S is a MANPADS (Man-Portable Air Defence System) of Russian origin. It is a shoulder-fired, short-range surface-to-air missile system utilizing infrared homing (heat-seeking) logic to intercept low-flying assets like drones, helicopters, and cruise missiles up to a range of 6 km.

8. Consider the following statements regarding the Pralay missile:

1. It is powered by liquid-fuel propulsion engines, restricting its launch capabilities exclusively to fixed silos.
2. It is an indigenously developed, solid-propellant quasi-ballistic missile with an operational strike range of 150 to 500 km.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer: (b)

Detailed Explanation:

- **Statement 1 is incorrect:** The Pralay missile is powered by a solid-propellant rocket motor. Solid-fuel design allows it to be stored ready-to-fire and launched dynamically from road-mobile launchers, ensuring high operational flexibility.
- **Statement 2 is correct:** Pralay is a short-range, surface-to-surface quasi-ballistic missile developed by DRDO. It has a targeting range of 150–500 km and can alter its trajectory mid-flight to evade defensive interceptor systems.

9. Consider the following statements:

1. INS Nistar and INS Nipun are indigenously designed and built Diving Support Vessels (DSVs) engineered for deep-sea salvage and submarine rescue operations.
2. Both vessels operate as mother ships for Deep Submergence Rescue Vehicles (DSRVs) and can execute diving operations up to depths of 3,000 meters.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer: (a)

Detailed Explanation:

- **Statement 1 is correct:** INS Nistar and INS Nipun are twin Diving Support Vessels (DSVs) manufactured by Hindustan Shipyard Limited (HSL). They provide subsea support, search and rescue, and deep-sea diving capabilities.
- **Statement 2 is incorrect:** While they function as specialized mother ships for Deep Submergence Rescue Vehicles (DSRVs), their structural diving and salvage operations extend up to operational depths of 300 meters, not 3,000 meters.

10. In the context of Indian defense infrastructure, consider the following statements:

1. The operational strike range of the base Astra Mk-1 missile variant exceeds 500 km
2. The Astra Mk-1 is an indigenously developed Beyond Visual Range Air-to-Air Missile (BVRAAM) equipped with an indigenous Radio Frequency (RF) seeker.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer: (b)

Detailed Explanation:

- **Statement 1 is incorrect:** The base variant, Astra Mk-1, features an effective operational strike range of 80 to 110 km, not 500 km. Extended range versions under testing like Astra Mk-2 possess a range profile of 130–160 km.
- **Statement 2 is correct:** Astra is India's first indigenous Beyond Visual Range Air-to-Air Missile (BVRAAM). Recent upgrades successfully integrated an indigenous Radio Frequency (RF) seeker to track and lock onto electronic signatures of supersonic enemy aircraft.

Defense and Security News-IV

Q. With reference to Mission Sudarshan Chakra, consider the following statements:

1. It is designed exclusively as a low-altitude surface-to-air missile defence system for protecting military installations.
2. The mission emphasizes indigenous development and manufacturing of defence systems.
3. It incorporates cyber-security measures to safeguard critical defence networks.
4. The mission envisages phased modernization of India's defence capabilities by 2035.

Which of the statements given above are correct?

- (a) 1, 2 and 3 only
- (b) 2, 3 and 4 only
- (c) 1 and 4 only
- (d) 1, 2, 3 and 4

Answer: (b)

Explanation

- **Statement 1 is incorrect:** Mission Sudarshan Chakra is envisaged as a comprehensive, multi-layered national defence framework integrating air defence, cyber security, surveillance, and critical infrastructure protection. It is not limited exclusively to a low-altitude surface-to-air missile defence role.
- **Statement 2 is correct:** The mission places strong emphasis on indigenous research, development, and manufacturing in line with the Aatmanirbhar Bharat initiative.
- **Statement 3 is correct:** The framework includes cyber-security measures to protect critical defence networks from threats such as hacking, phishing, and other cyber-attacks.
- **Statement 4 is correct:** The mission envisages phased modernization and expansion of India's defence capabilities, with implementation targets extending up to 2035.

2. What is the common characteristic or objective of the projects/systems known as Project Kusha, Project Akashteer, and Project Anant Shastra often discussed in the media?

- (a) These are deep-sea mining exploration initiatives under the Ministry of Earth Sciences.
- (b) These are components of India's evolving multi-layered air defense and airspace monitoring architecture.
- (c) These are high-altitude satellite launch vehicles developed by ISRO for military communication.
- (d) These are electronic warfare packages designed for encryption of naval carrier communications.

Answer: (b)

Explanation:

- **Option (b) is correct:** Project Kusha is an Indian Air Force program to build an indigenous long-range surface-to-air missile system (LR-SAM). Combined with tactical automated networks like Akashteer (Army airspace control) and Anant Shastra (QRSAM), they all form part of India's integrated, network-centric, multi-layered air defense architecture.

3. With reference to components of India's Integrated Air Defence Weapon System (IADWS), consider the following pairs:

Component System	Core Operational Profile / Description
I. Quick Reaction SAM (QRSAM)	Designed to protect moving armored formations from low-altitude attacks
II. Advanced VSHORADS	A Man-Portable Air Defence System (MANPADS) with an operational range of up to ~6 km
III. Directed Energy Weapon (DEW)	Uses concentrated laser beams to destroy targets at the speed of light

How many of the pairs given above are correctly matched?

- (a) Only one
- (b) Only two
- (c) All the three
- (d) None

Answer: (c)

Detailed Explanation:

- **Pair I is correctly matched:** QRSAM (developed by DRDO/DRDL) is engineered to provide air defense on the move, maintaining a range of 25–30 km to shield mobile armored columns.
- **Pair II is correctly matched:** The Advanced VSHORADS (developed by Research Centre Imarat) is a short-range MANPADS system designed to lock onto and eliminate low-altitude threats at distances up to ~6 km.
- **Pair III is correctly matched:** Directed Energy Weapons (developed by CHES) represent the newest technology layer, using focused laser systems to slice structures or trigger target warheads instantaneously.

4. With reference to the recently tested Agni-Prime (Agni-P) missile system, which of the following statements is/are correct?

1. It is a surface-to-surface ballistic missile representing the sixth entry in the Agni series.
2. It relies on an uncanisterized liquid-propellant engine system to achieve maximum mobility.
3. Its successful deployment from rail-based mobile platforms enhances India's credible second-strike capability under its No First Use nuclear doctrine.

Select the correct answer using the code given below:

- (a) 1 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer: (c)

Detailed Explanation:

- **Statement 1 is correct:** Agni-Prime is the sixth generation of the Agni ballistic missile series, functioning as a surface-to-surface technological upgrade to the legacy Agni-I systems.
- **Statement 2 is incorrect:** Agni-P features an advanced, lightweight solid-propellant engine configuration and utilizes a modern canisterized setup. Canisterization encloses the missile in a hermetic chamber, allowing long-term storage and rapid deployment.
- **Statement 3 is correct:** Rail-based launchers leverage India's massive rail footprint for natural concealment and movement. This high mobility forms the backbone of a robust second-strike nuclear capability, which is necessary for India's "No First Use" security policy.

5. With reference to the newly integrated X-Guard Fibre-Optic Towed Decoy (FOTD) electronic warfare systems, consider the following statements:

1. All types of combat aircraft can deploy the X-Guard FOTD software adaptation.
2. The X-Guard system acts as a trailing, expendable electronic shield that mimics the hosting jet's radar cross-section and speed.
3. It relies on passive infrared heat-suppression flares without emitting any multi-band radio jamming signals.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All the three
- (d) None

Answer: (a)

Detailed Explanation:

- **Statement 1 is incorrect:** The X-Guard FOTD is a specialized asset designed by Rafael Advanced Defence Systems to integrate into the Rafale fighter jet's proprietary SPECTRA electronic warfare architecture. It is not a universal, plug-and-play unit for all types of aircraft.
- **Statement 2 is correct:** The AI-enabled decoy is deployed mid-flight behind the jet, physically trailing it while mimicking its speed, radar cross-section, and signature to draw incoming radar-guided missiles away from the aircraft.
- **Statement 3 is incorrect:** X-Guard does not rely purely on passive heat flares. It functions as an active electronic warfare node, transmitting jamming signals across multiple radar bands to confuse and disrupt enemy tracking networks.

6. Consider the following air-launched weapon systems:

1. Extended Range Attack Munitions (ERAMS)
2. SCALP EG
3. Storm Shadow

How many of the above are classified as 5th-Generation stealth fighter aircraft?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Answer: (d)

Detailed Explanation:

- **Option (d) is correct:** None of the listed entries are aircraft. They are all air-launched precision-guided cruise missiles or standoff munitions. ERAMs (developed by the US Air Force) combine the power of a heavy ordnance bomb with the long standoff range (240–450 km) of a cruise missile to engage fixed or mobile targets without putting the launch aircraft within range of enemy air defenses.

7. Consider the following statements:

1. Poseidon is an autonomous, nuclear-powered and nuclear-capable unmanned underwater vehicle (UUV) designed by Russia that can function similarly to a long-range torpedo.
2. Unlike air-launched cruise missiles that travel at high altitudes, Poseidon can navigate at oceanic depths exceeding 1 km at speeds of roughly 200 km/h.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer: (c)

Detailed Explanation:

- **Statement 1 is correct:** Poseidon (NATO designation: Canyon) is a nuclear-propelled, nuclear-armed unmanned underwater drone designed to carry massive payloads (up to two megatons), operating essentially as an underwater intercontinental drone-torpedo.
- **Statement 2 is correct:** Due to its onboard mini nuclear reactor propulsion, it achieves unique performance parameters for an underwater weapon system: navigating at extreme depths (greater than 1 km) and high underwater speeds (~200 km/h), making it difficult to detect or intercept with standard acoustic defense measures.

8. Consider the following military and airspace management operations:

1. Generating automated, predictive drone threat assessments using machine learning models.
2. Interfacing directly with field air defense systems like the Akashteer platform to map friendly, neutral, and hostile aircraft in real-time.
3. Directing coordinated kinetic hard-kill and electronic soft-kill defensive assets simultaneously during a multi-directional drone swarm attack.

In how many of the above operational activities is the functional management of the Saksham Counter-Unmanned Aerial System (CUAS) Grid required?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Answer: (c)

Detailed Explanation:

- **Scenario 1 is required:** The Saksham Grid (developed alongside BEL) uses AI algorithms to parse data streams for automated, real-time threat detection and tracking.
- **Scenario 2 is required:** Interoperability is a primary feature of Saksham. It integrates with existing tactical frameworks like the Indian Army's Akashteer System to maintain shared situational awareness of airspace users.

- **Scenario 3 is required:** Saksham stands for *Situational Awareness for Kinetic Soft and Hard Kill Assets Management*. Its core design acts as a decision-support command hub to manage hard-kill vectors (missiles/guns) and soft-kill measures (jamming) during swarm attacks.

9. Consider the following statements:

1. INS Androth is an indigenous aircraft carrier designed for long-range oceanic carrier battle group control.
2. INS Himgiri is a diesel-propelled submarine engineered exclusively for shallow-water littoral acoustic monitoring.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer: (d)

Detailed Explanation:

- **Statement 1 is incorrect:** INS Androth is an Anti-Submarine Warfare Shallow Water Craft (ASW-SWC) vessel, not an aircraft carrier. It was built by GRSE with high domestic sourcing for coastal defense, maritime surveillance, and low-intensity maritime operations.
- **Statement 2 is incorrect:** INS Himgiri is an Advanced Guided Missile Frigate (Project 17A), armed with Barak-8 and BrahMos missile suites. It is a large surface combatant vessel (6,670-tonne displacement) powered by a Combined Diesel or Gas (CODOG) system, not a submarine.

10. Consider the following statements:

1. The Anant Shastra air defense system is a fully mobile, quick-reaction surface-to-air missile (SAM) network designed to track and engage multiple targets on the move.
2. It has an effective tactical operational range of up to 300 km with a target altitude engagement envelope of up to 50 km.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer: (a)

Detailed Explanation:

- **Statement 1 is correct:** Formerly known as the Quick Reaction Surface-to-Air Missile (QRSAM) system, Anant Shastra is a highly mobile air defense asset developed by DRDO, BEL, and BDL. It is being inducted to replace the Soviet-era OSA-AK systems to safeguard ground formations on the move.
- **Statement 2 is incorrect:** The tactical specifications of the system match short-to-medium quick-reaction criteria: its operational engagement range extends up to 30 km (not 300 km), and its vertical altitude capability covers up to 10 km (not 50 km).

Defense and Security News-V

1. Consider the following defensive and security activities:

1. Detection of low-altitude electronic signatures and categorization of hostile airborne targets.

2. Deployment of AI-powered autonomous interceptor swarms equipped with defensive munitions along geographical flanks.
3. Establishing static, continuous structural barriers to physically block the ground entry of undocumented motorized vehicles.

In how many of the above activities can the technology and network framework of the European Drone Wall (Eirshield) initiative be used?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Answer: (b)

Detailed Explanation:

- **Statement 1 is correct:** The Drone Wall integrates multi-layered tracking setups—including micro-Doppler radar, cameras, and radio frequency detectors—to dynamically identify and categorize unauthorized, low-altitude aerial threats.
- **Statement 2 is correct:** The architecture relies on active kinetic defense layers, deploying interceptor platforms and planning for future AI-driven autonomous drone swarms to physically disable hostile drones.
- **Statement 3 is incorrect:** The Drone Wall is not a physical barrier or ground wall. It is a virtual, coordinated electronic and kinetic multi-layered security grid spanning airspace boundaries.

2. Consider the following statements:

1. The MH-60R Seahawk is a multi-mission maritime helicopter primarily designed to execute anti-submarine and anti-surface warfare operations.
2. Developed by Sikorsky, the helicopter platform relies on dipping sonar, sonobuoys, and advanced multi-mode radar arrays to track subsurface profiles.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer: (c)

Detailed Explanation:

- **Statement 1 is correct:** The MH-60R Seahawk serves as an advanced multi-mission naval helicopter platform specialized in tracking, targeting, and neutralizing surface vessels and deep-water submarines.
- **Statement 2 is correct:** It is engineered by Sikorsky (Lockheed Martin) and features a comprehensive sensor suite including acoustic dipping sonar, deployable sonobuoys, multi-mode radar, and infrared targeting arrays to secure real-time data links.

3. With reference to the indigenously developed naval vessel Anjadi', which of the following statements is/are correct?

1. It is designed as an Anti-Submarine Warfare Shallow Water Craft (ASW SWC).
2. It is powered by a high-efficiency waterjet propulsion system.
3. It has an import-dependent weapon module utilizing non-indigenous 30 mm automated artillery guns.

Select the correct answer using the code given below:

- (a) 1 only
- (b) 1 and 2 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

Answer: (b)

Detailed Explanation:

- **Statement 1 is correct:** Anjadip is the third of eight planned Anti-Submarine Warfare Shallow Water Crafts designed for littoral warfare and near-shore surveillance operations.
- **Statement 2 is correct:** At 77 meters in length, these ASW SWCs stand as the largest class of Indian naval warships utilizing waterjet propulsion for rapid maneuvering.
- **Statement 3 is incorrect:** The vessel is built with over 80% indigenous component architecture and is specifically fitted with an indigenous 30 mm Naval Surface Gun, rather than an import-dependent module.

4. Which of the following statements with regard to the global circumnavigation voyage Navika Sagar Parikrama II is/are correct?

1. It was completed as a historic double-handed voyage aboard the sailing vessel INSV Tarini by two women officers of the Indian Navy.
2. The entire continuous transit across multiple oceans was achieved using auxiliary fossil-fuel motorized propulsion engines without relying on sails.

Select the answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer: (a)

Detailed Explanation:

- **Statement 1 is correct:** Lieutenant Commanders Roopa A. and Dilna K. completed the historic voyage as India's first double-handed circumnavigators, operating with a two-person crew.
- **Statement 2 is incorrect:** The journey was completed entirely under sail, without external assistance or reliance on fossil-fuel propulsion engines, navigating across three major oceans and the three Great Capes.

5. Which of the following statements with regard to the Financial Fraud Risk Indicator (FRI) is/are correct?

1. It is a risk-based metric introduced by the Department of Telecommunications to combat mobile-based cyber fraud.
2. It aggregates data feeds from international global intelligence units without referencing domestic data portals.
3. The indicator enables commercial banking systems and UPI providers to isolate and apply extra monitoring to numbers tagged with higher risk levels.

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 3 only
- (d) 1, 2 and 3

Answer: (b)

Detailed Explanation:

- **Statement 1 is correct:** The FRI was created by the DoT as a security tier to categorize cellular connections based on their statistical probability of deploying cyber financial fraud.
- **Statement 2 is incorrect:** The FRI draws directly from domestic tracking databases, including the National Cybercrime Reporting Portal (NCRP), the DoT's Chakshu facility, and the Digital Intelligence Platform (DIP), along with data from local banks.
- **Statement 3 is correct:** The risk categorizations (Medium, High, Very High) allow digital payment interfaces, UPI providers, and NBFCs to step up monitoring and freeze vulnerable accounts securely.

6. Which of the following statements with regard to the enforcement action Operation Deep Manifest is/are correct?

1. It was launched by the Directorate of Revenue Intelligence (DRI) to halt the illegal import of prohibited goods routed through third countries.
2. It enforces compliance with the absolute policy restrictions on goods originating from or exported by Pakistan.

Select the answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer: (c)

Detailed Explanation:

- **Statement 1 is correct:** The DRI executed Operation Deep Manifest to stop illicit supply chains that bypass trade rules by routing prohibited regional goods through third-party logistics hubs like Dubai, UAE.
- **Statement 2 is correct:** Following a comprehensive trade ban, this targeted security operation is designed to detect and seize illicit cargo entering the country in violation of absolute import restrictions.

7. Consider the following matrix of military exercises:

Exercise	Participating Countries / Entities	Operational Profile / Description
Shakti	India and France	Biennial joint land force military exercise
PASSEX	India and United Kingdom	Maritime passage exercise conducted in the Arabian Sea
Khaan Quest	India and Mongolia	Began as a bilateral exercise, later expanded into a multinational drill

Nomadic Elephant	India and Malaysia	Specialized annual amphibious mountain warfare drill
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How many of the rows given above are correctly matched?

- (a) Only one row
- (b) Only two rows
- (c) Only three rows
- (d) All four rows

Answer: (c)

Detailed Explanation:

- **Row 1 is correctly matched:** Exercise Shakti is a biennial joint military exercise alternating between India and France.
- **Row 2 is correctly matched:** PASSEX is a maritime passage exercise carried out by the Indian Navy alongside the UK Carrier Strike Group in the North Arabian Sea.
- **Row 3 is correctly matched:** Khaan Quest is hosted in Mongolia; it started as a US-Mongolia bilateral event in 2003 before turning into a multinational framework in 2006.
- **Row 4 is incorrectly matched:** Exercise Nomadic Elephant is an annual joint military exercise conducted between India and Mongolia, not Malaysia.

8. Consider the following matrix of strategic military exercises:

Exercise	Participating Countries / Entities	Operational Profile / Description
Bold Kurukshetra	India and Singapore	Conducted as a Table-Top Exercise and Computer-Based Wargame
Bharat NCX	India (Domestic Initiative)	National Cybersecurity Exercise conducted by the NSCS
SIMBEX	India and Sri Lanka	Longest-running maritime drill operating since 1994
Talisman Sabre	Multinational (Australia-led)	Large-scale multilateral exercise with diverse global partners

How many of the rows given above are correctly matched?

- (a) Only one row
- (b) Only two rows
- (c) Only three rows
- (d) All four rows

Answer: (c)

Detailed Explanation:

- **Row 1 is correctly matched:** Bold Kurukshetra features armored and mechanized warfare simulations between the armies of India and Singapore.
- **Row 2 is correctly matched:** Bharat NCX is a domestic exercise led by the National Security Council Secretariat (NSCS) alongside Rashtriya Raksha University (RRU) to test cyber resilience.

- **Row 3 is incorrectly matched:** SIMBEX is the Singapore-India Maritime Bilateral Exercise (originally Exercise Lion King in 1994). It does not involve Sri Lanka.
- **Row 4 is correctly matched:** Exercise Talisman Sabre is Australia's largest multilateral military exercise, bringing together multiple nations including the US, India, and Japan.

9. Consider the following matrix of defense operations:

Exercise	Participating Countries / Entities	Operational Profile / Description
Jaa Mata	India and Japan	Joint sea exercise between Indian Coast Guard and Japanese Coast Guard
Achook Prahar	Indian Army and ITBP	Validation of operational readiness in the border areas of Arunachal Pradesh
SLINEX	India and Sri Lanka	Bilateral naval exercise held in Colombo
Bright Star	Multinational (Hosted by Egypt)	Tri-service multilateral exercise co-partnered with the United States

How many of the rows given above are correctly matched?

- (a) Only one row
- (b) Only two rows
- (c) Only three rows
- (d) All four rows

Answer: (d)

Detailed Explanation:

- **Row 1 is correctly matched:** Exercise Jaa Mata involves close cooperation between the Indian Coast Guard and the Japanese Coast Guard vessel Itsukushima.
- **Row 2 is correctly matched:** Achook Prahar brings together the Spear Corps of the Indian Army and the Indo-Tibetan Border Police (ITBP) under simulated battlefield scenarios in the northeast.
- **Row 3 is correctly matched:** SLINEX is the recurring Sri Lanka-India Naval Exercise focusing on maritime interoperability.
- **Row 4 is correctly matched:** Exercise Bright Star is a biennial multinational tri-service drill hosted by Egypt and the United States, with widespread global participation.

Question 10: Military Exercises (Set 4)

Blueprint: 4 Rows $\times$ 3 Columns matrix matching format using variable counting logic.

Q10. Consider the following matrix of operational tactical exercises:

Exercise	Base Implementing Agency / Force	Core Objective / Framework
Cold Start	Joint Tri-Service Forces	Large-scale evaluation of drones and counter-drone field hardware

Pacific Reach	Multilateral (Hosted by Singapore)	Focused on deep-sea intervention and submarine rescue operations
Siyom Prahar	Indian Air Force	Validation of medium-range strategic transport aircraft drops
NATPOLREX-X	Indian Coast Guard (ICG)	Flagship biennial national marine oil spill response exercise

How many of the rows given above are correctly matched?

- (a) Only one row
- (b) Only two rows
- (c) Only three rows
- (d) All four rows

Answer: (c)

Detailed Explanation:

- **Row 1 is correctly matched:** Cold Start brings together the Army, Navy, Air Force, and R&D partners in Madhya Pradesh to evaluate drone ecosystems.
- **Row 2 is correctly matched:** Pacific Reach features a harbor exchange phase and a sea phase designed to practice submarine escape and rescue tracking.
- **Row 3 is incorrectly matched:** Exercise Siyom Prahar is conducted by the **Indian Army** (not the Air Force) in Arunachal Pradesh to practice integrating small drones into tactical land operations.
- **Row 4 is correctly matched:** NATPOLREX-X is the National Level Pollution Response Exercise run by the ICG to test preparedness against offshore oil spills.

Defense and Security News-VI

1. Which of the following statements regarding the geopolitical and technical parameters of Project Nimbus are correct?

1. It is a flagship cloud-computing and AI infrastructure agreement between the government of Israel and tech corporations Google and Amazon.
2. The core framework involves transferring all state data out of the Middle East to be hosted within centralized data servers in the United States.
3. The project provides localized high-compute infrastructure, machine learning capabilities, and automated facial detection tools.
4. The agreement lacks a sovereign non-restriction clause, allowing corporate providers to shut down public sector access at their discretion during conflicts.

Select the correct answer using the code given below:

- (a) 1 and 3 only
- (b) 2 and 4 only
- (c) 1, 2 and 4
- (d) 1 and 4 only

Answer: (a)

Explanation:

- **Statement 1 is correct:** Project Nimbus is a USD 1.2 billion cloud-computing agreement signed in 2021 between the Israeli government, Google Cloud Platform, and Amazon Web Services.
- **Statement 2 is incorrect:** Data processing and server administration are explicitly localized within Israel to maintain strict state data sovereignty rather than moving it to the US.
- **Statement 3 is correct:** The project integrates advanced tools like facial detection, machine learning models, automated image categorization, and sentiment analysis for state processing.
- **Statement 4 is incorrect:** Contract leaks show the agreement contains a strict Sovereign Non-Restriction Clause, which prevents the tech companies from blocking or disabling services due to corporate policy shifts or international pressure.

2. With reference to Phase II of India's Ballistic Missile Defence (BMD) Programme, which of the following statements is/are correct?

1. It is an automated, highly integrated network developed indigenously by the Defence Research and Development Organisation (DRDO).
2. The deployment architecture relies on endo-atmospheric interceptor missiles to engage threats inside the atmosphere.
3. The validation of this multi-layered framework marks progress toward the realization of Mission Sudarshan Chakra.

Select the correct answer using the code given below:

- (a) 1 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer: (c)

Explanation:

- **Statement 1 is correct:** The BMD system is an automated network of radars, command units, and interceptor missiles engineered by the DRDO since its inception in 1999.
- **Statement 2 is incorrect:** The programme features a two-tier interceptor network, using both exo-atmospheric interceptors (to hit missiles outside the atmosphere) and endo-atmospheric interceptors (inside the atmosphere).
- **Statement 3 is correct:** The completion and testing of Phase II directly support Mission Sudarshan Chakra, which aims to create an integrated, multi-level defensive missile shield.

3. Which of the following statements with regard to the Naval Anti-Ship Missile-Medium Range (NASM-MR) is/are correct?

1. It is a supersonic, high-altitude ballistic missile designed to engage heavy strategic aircraft carrier groups.
2. It is powered by an indigenous Small Gas Turbine Jet Engine (SGTJE) and utilizes a sea-skimming flight profile.
3. The guidance architecture combines an active radar seeker with an imaging infrared (IR) seeker to preserve operational accuracy under electronic countermeasures.

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 3 only
- (d) 1, 2 and 3

Answer: (b)

Explanation:

- **Statement 1 is incorrect:** The NASM-MR is a subsonic, sea-skimming cruise missile designed to target small-to-medium vessels like frigates, corvettes, and destroyers, rather than a supersonic ballistic missile.
- **Statement 2 is correct:** It features a custom indigenous Small Gas Turbine Jet Engine (SGTJE) and skims just above the sea surface to reduce its radar cross-section.
- **Statement 3 is correct:** Its advanced dual-mode terminal guidance setup pairs an active radar seeker with an imaging infrared (IR) sensor to lock onto targets despite hostile electronic jamming.

4. Consider the following statements regarding India's indigenous glide weapon system TARA:

1. It is a modular range-extension kit designed to transform conventional, unguided gravity bombs into precision-guided munitions.
2. It functions as an independent, rocket-propelled hypersonic cruise missile system that can only be launched from ground mobile launchers.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer: (a)

Explanation:

- **Statement 1 is correct:** Developed by the DRDO and the Indian Air Force, the Tactical Advanced Range Augmentation (TARA) is a glide kit added to conventional unguided warheads to give them precision flight control.
- **Statement 2 is incorrect:** TARA is an unpowered glide weapon kit, not a self-propelled cruise missile. It is dropped from air platforms and can be deployed from multiple fighter aircraft across the IAF's fleet.

5. Which of the following statements with regard to India's nuclear-powered ballistic missile submarines (SSBNs) is/are correct?

1. INS Aridhaman is the third operational vessel of the Arihant-class developed under the Advanced Technology Vessel (ATV) project.
2. INS Arihant, commissioned in 2016, serves as the primary sea-based leg of India's nuclear triad network.
3. Unlike its predecessors, the larger 7,000-tonne INS Aridhaman has completely abandoned vertical launching system tubes to carry torpedoes exclusively.

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 only
- (d) 1, 2 and 3

Answer: (a)

Explanation:

- **Statement 1 is correct:** INS Aridhaman is the third nuclear-powered ballistic missile submarine in this class, following INS Arihant (2016) and INS Arighaat (2024), built under the long-running ATV project.

- **Statement 2 is correct:** INS Arihant completed its first deterrence patrol in 2018, locking in the sea leg of India's nuclear triad strategy.
- **Statement 3 is incorrect:** INS Aridhaman actually features an expanded missile capacity with 8 vertical launching system (VLS) tubes. This allows it to carry a larger payload of K-15 and K-4 submarine-launched ballistic missiles (SLBMs).

6. Consider the following strategic military capabilities:

1. Striking deep targets across neighboring regional zones from submerged oceanic platforms.
2. Utilizing a two-stage solid rocket propulsion system for mid-course and terminal transit.
3. Conducting automatic terrain evaluation using Terminal Terrain Contour Matching (TERCOM) guidance.

In how many of the above operational capabilities can the K-4 submarine-launched ballistic missile (SLBM) be utilized?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Answer: (c)

Explanation:

- **Capability 1 is correct:** The K-4 is an intermediate-range submarine-launched ballistic missile with a range of up to 3,500 km, allowing hidden submarines to strike inland targets.
- **Capability 2 is correct:** The missile relies on a two-stage solid-fuel rocket motor to power its trajectory.
- **Capability 3 is correct:** Its guidance package features an Inertial Navigation System (INS) and multi-GNSS tracking, paired with terminal TERCOM (Terrain Contour Matching) to ensure high accuracy.

7. Which of the following statements regarding the strategic reforms outlined in the Defence Forces Vision 2047 document are correct?

1. It proposes a doctrinal shift away from net-centric warfare to data-centric warfare to secure 'decision superiority'.
2. The implementation roadmap is compressed into a single-phase transition strategy scheduled for full completion by 2030.
3. It outlines the creation of specialized structures including a Space Command, Cyber Command, Data Force, and Drone Force.
4. The plan prioritizes high-tech integration, explicitly leveraging technologies like AI, autonomous systems, and quantum sensing.

Select the correct answer using the code given below:

- (a) 1 and 3 only
- (b) 2 and 4 only
- (c) 1, 3 and 4
- (d) 2 and 3 only

Answer: (c)

Explanation:

- **Statement 1 is correct:** The document transitions India's defensive approach from information superiority to data-driven decision superiority on the battlefield.
- **Statement 2 is incorrect:** The implementation uses a three-phase roadmap: the Era of Transition (up to 2030), the Era of Consolidation (2030–2040), and the Era of Excellence (2040–2047).

- **Statement 3 is correct:** The vision creates dedicated next-gen structures like the Space Command, Cyber Command, Data Force, Drone Force, and Cognitive Warfare Action Forces.
- **Statement 4 is correct:** The plan prioritizes high-tech integration, explicitly leveraging technologies like AI, autonomous systems, and quantum sensing across multiple domains.

8. Consider the following statements regarding the newly commissioned frontline naval platforms:

1. INS Dunagiri is an advanced Project 17A stealth frigate equipped with BrahMos surface-to-surface missiles.
2. Sanshodhak operates as a large survey vessel configured for deep-water and coastal hydrographic surveys.
3. Agray is an aircraft carrier designed for executing long-range maritime bomber operations.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 1 and 2 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

Answer: (b)

Explanation:

- **Statement 1 is correct:** INS Dunagiri is the fifth Project 17A stealth frigate built by GRSE, featuring advanced sensors alongside BrahMos and medium-range surface-to-air missile weapon systems.
- **Statement 2 is correct:** Sanshodhak is the fourth Survey Vessel (Large) built to collect oceanographic and geophysical data using Autonomous Underwater Vehicles (AUVs).
- **Statement 3 is incorrect:** Agray is the fourth of the Arnala-class Anti-Submarine Warfare Shallow Water Craft (ASW SWC) designed for littoral operations, not an aircraft carrier.

9. With reference to the Naval Anti-Ship Missile–Medium Range (NASM–MR), which of the following statements is/are correct?

1. It is designed with different versions, including ship-launched, air-launched, and submarine-launched variants.
2. It features an operational strike range extending up to a maximum of 350 km.
3. It functions as a short-range, gravity-dropped precision glide weapon with an unpowered payload under 50 kg.

Select the correct answer using the code given below:

- (a) 1 only
- (b) 1 and 2 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

Answer: (b)

Explanation:

- **Statement 1 is correct:** The NASM-MR architecture is built to support flexible deployment options across surface ships, fixed-wing aircraft, and submarines.
- **Statement 2 is correct:** This all-weather cruise missile provides a standalone operational strike range of up to 350 km.
- **Statement 3 is incorrect:** The NASM-MR is a jet-powered cruise missile carrying a heavy warhead weighing more than 200 kilograms, distinct from lightweight unpowered glide weapons.

10. Consider the following operational coastal security activities:

1. Traveling across low-resistance areas like shallow mudflats and exposed river sandbars.

2. Launching high-speed amphibious operations without water friction by maintaining a pressurized air cushion.
3. Undergoing localized deep-sea submarine rescue operations at depths exceeding 500 meters.

At the present level of technology, which of the above activities can be successfully carried out by the newly inducted Air Cushion Vehicles (ACVs)?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer: (a)

Explanation:

- **Statement 1 is correct:** Hovercraft are amphibious by design, allowing them to glide smoothly over varying terrain like open water, mudflats, swamps, and sandbars.
- **Statement 2 is correct:** An ACV lifts its hull entirely off the surface by trapping a high-pressure cushion of air inside a flexible rubber skirt, removing water resistance and enabling high-speed maneuvers.
- **Statement 3 is incorrect:** ACVs are strictly surface vessels that skim above the water or land. They cannot submerge or perform deep-sea underwater submarine rescue operations.

Fairs And Festivals in News

1. Consider the following table regarding traditional festivals and matching specifications:

Festival	Region	Key Feature
1. Kheer Bhawani Mela	Ganderbal, Jammu & Kashmir	Built by Maharaja Pratap Singh; features a sacred spring believed to change colour.
2. Bonalu Festival	Hyderabad & Secunderabad, Telangana	Dedicated to Goddess Mahakali; features a future-forecasting ritual called 'Rangam'.
3. Poson Poya	Mihintale & Anuradhapura, Sri Lanka	Commemorates the arrival of Buddhism via Arahat Mahinda in the 3rd century BCE.
4. Ambubachi Mela	Kamakhya Temple, Guwahati, Assam	Tantric fertility festival celebrating the annual menstruation of the deity.

How many of the rows given above are correctly matched?

- (a) Only one row
- (b) Only two rows
- (c) Only three rows
- (d) All four rows

Correct Answer: (d)

Explanation:

- **Row 1 is correctly matched:** Kheer Bhawani Mela is celebrated by Kashmiri Pandits on Jyeshtha Ashtami at a temple built in 1912 by Maharaja Pratap Singh over a color-shifting spring.

- **Row 2 is correctly matched:** Bonalu was declared a state festival of Telangana in 2014, and includes the "Rangam" forecasting ritual.
- **Row 3 is correctly matched:** Poson Poya marks the exact historical timeline when Buddhism reached Sri Lanka via Emperor Ashoka's son.
- **Row 4 is correctly matched:** Ambubachi Mela is known as the Mahakumbh of the East, celebrating regional tantric traditions and cosmic regeneration.

Q2. Which one of the following options correctly lists the elements inscribed on the UNESCO Representative List of the Intangible Cultural Heritage of Humanity in India from the earliest inclusion to the latest?

- (a) Kutiyattam — Mudi yettu — Kalbelia — Durga Puja in Kolkata
- (b) Mudi yettu — Kutiyattam — Durga Puja in Kolkata — Kalbelia
- (c) Kutiyattam — Kalbelia — Mudi yettu — Durga Puja in Kolkata
- (d) Kalbelia — Mudi yettu — Kutiyattam — Durga Puja in Kolkata

Correct Answer: (a)

Explanation:

- **Kutiyattam** (Sanskrit theatre of Kerala) was among India's first elements added to the list (proclaimed 2001, formally inscribed in 2008)
- **Mudi yettu** (ritual theatre of Kerala) was inscribed later in 2010.
- **Kalbelia** (folk songs and dances of Rajasthan) was also inscribed in 2010, but chronologically listed post-Mudi yettu in UNESCO's session registry.
- **Durga Puja in Kolkata** is a recent addition, inscribed in 2021.

3. With reference to the Shirui Lily Festival, consider the following statements:

1. The event is organized at the state level by the Ministry of North-East.
2. It takes place in the Ukhrul district, which is predominantly home to the Tangkhul Naga community.
3. The rare endemic flower is known locally by the name Kashsong Timrawon'.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Correct Answer: (b)

Explanation:

- **Statement 1 is incorrect:** The festival was launched in 2017 and is executed by the state's tourism department rather than a central ministry.
- **Statement 2 is correct:** It tracks the blooming season of the flower in the Ukhrul district, celebrating local ethnic Tangkhul Naga cultural roots.
- **Statement 3 is correct:** Locals name the flower after Timrawon, a mythical princess or goddess protecting the hill ecosystem.

4. Which of the following statements regarding the traditional practice of Dhirio is/are correct?

1. It is a traditional form of bullfighting from Goa that traces its historical origins back to the Portuguese colonial period.
2. Unlike classical Spanish bullfighting, it excludes the involvement of a matador or the ritualistic execution of the animal.

3. The practice remains fully legalized and actively regulated across coastal villages under a 1997 High Court mandate.

Select the correct answer using the code given below:

- (a) 1 only
- (b) 1 and 2 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

Correct Answer: (b)

Explanation:

- **Statement 1 is correct:** Dhirio is an agrarian bullfighting custom rooted in Goa's history that dates back to the Portuguese era.
- **Statement 2 is correct:** The fight involves two bulls locking horns until one retreats or is pushed out, without any ritual killing or matadors.
- **Statement 3 is incorrect:** A landmark 1997 High Court ruling actually banned Dhirio. It continues underground in some areas, which prompted state legislators to push for its legalization.

5. The festival of Rosh Hashanah, which was recently highlighted in national greetings, marks:

- (a) The Jewish New Year and the beginning of the Ten Days of Repentance
- (b) The day of complete fasting and ultimate absolution known as Yom Kippur
- (c) The commemoration of the liberation of Israel from Egyptian bondage
- (d) The joyful spring harvesting window celebrated by Mediterranean farmers

Correct Answer: (a)

Explanation:

- **Option (a) is correct:** Rosh Hashanah is the Jewish civil New Year, initiating a 10-day period of reflection and penitence that culminates in Yom Kippur (the Day of Atonement). During this time, tradition states that the Book of Life is opened for divine judgment.

6. Which of the following statements are correct regarding the Langkhun festival?

- 1. It is an annual post-harvest celebration dedicated to Ramsa Devta by the Tiwa community in Arunachal Pradesh.
- 2. The core ritual involves specialized bamboo worship ceremonies extending over four days.
- 3. The community practicing it follows a matrilineal lineage system and observes the Koba Liwa marriage custom.

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (b)

Explanation:

- **Statement 1 is incorrect:** Langkhun is celebrated by the Tiwa (Lalung) tribesmen in regions like Karbi Anglong, Assam, to express gratitude for harvests.
- **Statement 2 is correct:** The festival features sacred bamboo worship rites held between October and December.

- **Statement 3 is correct:** The Tiwa tribe is notable for its matrilineal lineage tracking and its unique, distinct marriage custom called Kobea Liwa.

7. With reference to northeastern India, the term Mera Hou Chongba designates:

- (a) A traditional bamboo-weave musical instrument used during sowing cycles
- (b) An indigenous festival of unity bonding the hill and valley communities of Manipur
- (c) A prehistoric cave painting site located in the upper sub-Himalayan tracts
- (d) A specific dialect spoken exclusively by the trans-border migration groups

Correct Answer: (b)

Explanation:

- **Option (b) is correct:** Mera Hou Chongba is a historic festival celebrated on the 15th day of the Meitei lunar month of Mera. It stands out as a unique event because it unifies the valley-dwelling Meiteis with the hill-dwelling Naga and Kuki tribes, featuring symbolic gift exchanges and marches to the Kangla Fort.

8. Consider the following statements regarding the Guru Charan Yatra:

1. The procession centers around the public darshan of the Jore Sahib, which are the sacred footwears of the tenth Sikh Guru and his wife.
2. The religious journey concluded its itinerary at the Takht Sri Patna Sahib Gurudwara in Bihar.
3. Before his death, Guru Gobind Singh terminated the human lineage of Gurus and designated the Khalsa Panth as the eternal Guru.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** The yatra features the Jore Sahib, the personal footwear relics of Guru Gobind Singh and Mata Sahib Kaur.
- **Statement 2 is correct:** The procession traveled from New Delhi down to Patna Sahib in Bihar, a key historic site in Sikhism.
- **Statement 3 is incorrect:** Guru Gobind Singh declared the Guru Granth Sahib (the holy scripture) as the eternal living Guru, not the Khalsa Panth (which refers to the community of the pure).

9. With reference to the Hornbill Festival of Nagaland, consider the following statements:

1. It is organized annually in the first week of December by the State Tourism and Art & Culture Departments of Nagaland.
2. The event is hosted at the Naga Heritage Village, Kisama, to promote inter-tribal interaction.
3. Large metallic cymbals are the only musical instruments permitted to accompany the performances.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** Known as the "Festival of Festivals," it was initiated in 2000 and is managed directly by Nagaland's tourism and culture departments.
- **Statement 2 is correct:** It takes place at Kisama, located roughly 12 km from Kohima, and serves to unite more than 17 ethnic tribes.
- **Statement 3 is incorrect:** The festival features a wide array of indigenous instruments alongside contemporary music setups like electric guitars.

10. With reference to the Bison Horn Maria Dance, consider the following statements:

1. It is a traditional folk dance performed by the Dandami Madia tribe of Chhattisgarh.
2. The custom requires the women performers to wear a headgear made from bamboo and decorated with wild bison horns.
3. The core choreographic movements imitate a wild bison to represent natural energy and hunting ties.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 3 only
- (d) 1, 2 and 3

Correct Answer: (b)

Explanation:

- **Statement 1 is correct:** This vibrant folk dance belongs to the Dandami Madia (Maria) community, which is part of the broader Gond tribal cluster in Bastar, Chhattisgarh.
- **Statement 2 is incorrect:** It is the men who wear the heavy bison-horn headgear decorated with feathers. The women wear bright saris, headbands, and heavy brass or silver jewelry.
- **Statement 3 is correct:** The dance moves mimic a wild bison's behavior, reflecting the tribe's historic relationship with the forest and local deities like Danteshwari Mai.

Architecture And Sculptures in News

1. With reference to historical rock-cut architecture, consider the following statements:

1. Ellora Caves were excavated top-down on the Charanandri Hills under the patronage of the Rashtrakuta and Yadava dynasties.
2. Unlike the multi-religious nature of the Ellora Caves, Petra was established as a mono-religious Buddhist monastic site by the Nabataean Kingdom.
3. The Ellora Caves feature mural paintings and monuments representing Hindu, Buddhist, and Jain traditions side by side.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Correct Answer: (b)

Explanation:

- **Statement 1 is correct:** The Ellora Caves are located in the Charanandri Hills of Maharashtra and were carved top-down directly into basalt cliffs between 600–1000 CE under the Rashtrakuta and Yadava dynasties.
- **Statement 2 is incorrect:** Petra was the capital of the Nabataean Kingdom (established around the 4th century BCE) located in southern Jordan. It is an ancient archaeological city famous for pink sandstone architecture, not a Buddhist monastic site.
- **Statement 3 is correct:** Ellora is celebrated for its religious harmony, housing 34 monasteries and temples belonging to Hindu, Buddhist, and Jain faiths adjacently, along with matching mural art.

2. Consider the following statements regarding medieval architectural gates in Delhi:

1. Turkman Gate was constructed during 17th century as part of structural layout of Shahjahanabad under Shah Jahan.
2. Unlike other historical city gates named after their geographic directions, it was named to honor a 13th-century Sufi saint whose shrine predates the walled city.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (c)

Explanation:

- **Statement 1 is correct:** The Turkman Gate was built in the 17th century when Mughal Emperor Shah Jahan established his new capital city, Shahjahanabad, which is today known as Old Delhi.
- **Statement 2 is correct:** Most gates of the walled city were named after the regions they faced (e.g., Kashmiri Gate, Lahori Gate). Turkman Gate is an exception; it was named after the 13th-century Sufi mystic Hazrat Shah Turkman Bayabani, whose dargah (tomb) sits nearby and was established long before the Mughals built the city walls.

3. Which of the following statements with regard to the historical and architectural features of the Somnath Temple is/are correct?

1. It is located at Prabhas Patan at a Triveni Sangam marking the confluence of the Kapila, Hiran, and Sarasvati rivers.
2. Current structure is built in the Maru-Gurjara architectural style and follows the Kailash Mahameru Prasad layout form.
3. The first historical raid on the temple was carried out by the Turkish ruler Mahmud of Ghazni during the reign of the Solanki monarch Bhima I.

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 only
- (d) 1, 2 and 3

Correct Answer: (d)

Explanation:

- **Statement 1 is correct:** The temple is situated at Prabhas Patan near Veraval, Gujarat, directly on the holy Triveni Sangam where the Kapila, Hiran, and Sarasvati rivers meet.

- **Statement 2 is correct:** The architecture is classic Maru-Gurjara (also known as Chalukya or Solanki style). It features the Kailash Mahameru Prasad design blueprint, consisting of a Garbhagriha, Sabhamandap, and Nrityamandap.
- **Statement 3 is correct:** In 1026 CE, Mahmud of Ghazni plundered the temple and broke its primary Jyotirlinga during the reign of King Bhima I. Historical records note that the temple site was looted up to 17 times across subsequent centuries.

4. Consider the following statements:

1. The Bhadrakali Inscription is a 12th-century Sanskrit epigraph discovered at Prabhas Patan that describes evolution of Somnath Temple across four sequential Yugas.
2. The inscription was composed as a prashasti for Acharya Bhavabrihaspati, the spiritual preceptor of the Kumarapala.

Which of the above statements is/are correct about Bhadrakali Inscription?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (c)

Explanation:

- **Statement 1 is correct:** The 1169 CE inscription is embedded directly in the wall of the Bhadrakali Temple in Gujarat. It chronicles the legendary history of the Somnath temple, noting its transitions from gold, silver, and wood into stone.
- **Statement 2 is correct:** It functions explicitly as a prashasti (praise poem/eulogy) honoring Acharya Bhavabrihaspati, who served as the royal spiritual guide to King Kumarapala, highlighting the Solanki dynasty's active structural restoration of the sacred complex.

5. Which of the following statements with regard to the archaeological discoveries at the Zehanpora site is/are correct?

1. It is a newly discovered ancient Buddhist monastic and stupa complex located along the Jhelum River in Jammu and Kashmir.
2. Architectural layouts and artifacts unearthed at site map exclusively onto indigenous Sangam-era cultural traditions of Southern India.

Select the answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** Drone mapping and systematically managed excavations confirmed that the man-made mounds at Zehanpora in Baramulla, J&K, contain a 2,000-year-old Buddhist complex near the Jhelum River.
- **Statement 2 is incorrect:** The remains date directly to the Kushan period (1st–3rd centuries CE) and follow the Gandhara Buddhist architectural style, demonstrating deep cultural links with historic complexes in Afghanistan and Pakistan.

6. Which of the following statements with regard to the Devnimori archaeological finds is/are correct?

1. The site is situated near the Shamlaji pilgrimage hub in Gujarat.
2. A stone relic unearthed bears a Brahmi script inscription identifying it as an authentic repository of the Buddha's bodily relics.

Select the answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (c)

Explanation:

- **Statement 1 is correct:** The Devnimori site is an important early Buddhist center in western India, excavated near the Shamlaji shrine within Gujarat's Aravalli district.
- **Statement 2 is correct:** The casket discovered inside the site's stupa explicitly features a Sanskrit inscription in the ancient Brahmi script stating dashabala sharira nilay, which translates to the abode of the Buddha's bodily relic. The box contained a copper container protecting organic material, ash remnants, beads, and silk cloth.

7. Consider the following matrix of archaeological findings and their properties:

Archaeological Context	State Geographic Region	Identified Description / Local Nomenclatures
1. Chokahatu Clusters	Jharkhand	A traditional Munda/Ho ancestral burial ground known locally as Hargarhi.
2. Sasandiri Structures	Jharkhand	Large table-like stone dolmens built to serve as family burial chambers.
3. Birdiri Monoliths	Andhra Pradesh	Classical rock-cut cave shrines excavated to store early Iron Age votive tools.
4. Living Megalithism	Karnataka	Completely abandoned stone circles with zero modern community interaction.

In which of the above rows is the given information correctly matched?

- (a) 1 and 2
- (b) 2 and 3
- (c) 3 and 4
- (d) 1 and 4

Correct Answer: (a) 1 and 2

Explanation:

- **Row 1 is correctly matched:** Megalithic layouts in the Ranchi-Khunti belt of Jharkhand (such as Chokahatu) link directly to ancient and ongoing tribal contexts called hargarhi or hargarha.
- **Row 2 is correctly matched:** In Munda and allied Adivasi traditions, the term Sasandiri specifically denotes dolmen-style family stone slab graves.

- **Row 3 is incorrectly matched:** Birdiri (or Biridiri) refers to commemorative standing menhir stones in Jharkhand, not rock-cut caves in Andhra Pradesh.
- **Row 4 is incorrectly matched:** Living megalithism is a rare ongoing cultural practice in Jharkhand where indigenous tribes continue to set up fresh ancestor stones today, meaning it is not an abandoned Karnataka tradition.

8. Which of the following statements with regard to the historical Golestan Palace complex is/are correct?

1. It is a UNESCO World Heritage Site situated in Tehran.
2. The layout of the complex showcase an integration of traditional Persian architectural design with 19th-century European artistic elements.
3. The construction and entire layout of the 17 structures were commissioned during the Pahlavi Era.

Select the answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 only
- (d) 1, 2 and 3

Correct Answer: (a) 1 and 2 only

Explanation:

- **Statement 1 is correct:** Inscribed by UNESCO in 2013, the Golestan Palace is located in Tehran, Iran, and achieved its peak prominence as the seat of the Qajar dynasty (1794–1925).
- **Statement 2 is correct:** The palace features a distinct hybrid aesthetic, combining traditional Islamic Persian styling with European decorative elements from the 19th century.
- **Statement 3 is incorrect:** The origins of the complex trace back to the Safavid Era (16th century) and the Qajar Era, not the Pahlavi Era. The Pahlavi rulers (1925–1979) primarily used the already-completed historical structures for formal state ceremonies and coronations.

9. Based on historical and archaeological surveys conducted in the Palani Hills, which of the following statements are correct regarding the Kodaikanal dolmens?

1. They are prehistoric, box-like megalithic structures built out of stone slabs resting on vertical pillars, dating back to 1500–2000 BCE.
2. Local tribal communities, such as the Paliyans and Kurumbas, are closely associated with these ancient structures.
3. Early 20th-century documentation of these sites was carried out by Jesuit priests and published in the Memoirs of the Archaeological Survey of India.

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (d) 1, 2 and 3

Explanation:

- **Statement 1 is correct:** The dolmens are pre-Iron Age megalithic stone chambers built above the ground between 1500–2000 BCE, ranking them among the oldest structural remains in the Palani Hills region of Tamil Nadu.

- **Statement 2 is correct:** Anthropological and historical models link these ancient stone structures to early local tribes like the Paliyans and Kurumbas.
- **Statement 3 is correct:** Jesuit priests Rev. A. Anglade and Rev. L.V. Newton systematically surveyed these features, publishing their records in the 1928 Memoirs of the Archaeological Survey of India (ASI) to alert authorities to their ongoing destruction.

10. Consider the following statements regarding the archaeological excavations at Kilnamandi village in Tiruvannamalai, Tamil Nadu:

1. Excavators uncovered a terracotta coffin, known as a sarcophagus, containing grave goods like etched carnelian beads and long iron spears.
2. The graffiti symbols carved onto the burial pottery show a 90% structural similarity with Indus Valley script signs.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Correct Answer: (c) Both 1 and 2

Explanation:

- **Statement 1 is correct:** Excavations at Kilnamandi revealed terracotta coffin burials (sarcophagi) complete with associated grave goods, including high-tin bronze objects, large 7-to-8-foot iron spears, and etched carnelian beads sourced through trade networks from Gujarat or Maharashtra.
- **Statement 2 is correct:** The pottery items inside the tombs feature specialized graffiti marks (such as fork symbols and concentric U designs) that exhibit an approximate 90% structural match with characters from the Indus Valley Civilization script, pointing to potential cultural continuities or clan markers.

Dance And Sculptures in News

1. With reference to the ancient site of Sarnath, consider the following statements:

1. It is the sacred location where Gautama Buddha delivered his first sermon, known as the Dhammachakkapavattana Sutta.
2. The structural remains of the Dhamek Stupa date to the early Vedic period, predating the Mauryan Empire.
3. The site received continuous architectural expansion and patronage under both the Kushana and Gupta dynasties.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer: (c)

Detailed Explanation:

- **Statement 1 is correct:** Sarnath (historically known as Mrigadava or Rishipatana) is the holy site where Gautama Buddha preached his first sermon to his first five disciples, setting the "Wheel of Dhamma" in motion.

- **Statement 2 is incorrect:** The Dhamek Stupa is a prominent Buddhist structure. Its foundations were laid during the Mauryan period by Emperor Ashoka and it was later rebuilt during the Gupta period. It has no connection to the early Vedic period.
- **Statement 3 is correct:** After the Mauryan era, Sarnath continued to grow significantly. Both the Kushana and Gupta empires actively added new monasteries, refurbished older stupas, and commissioned iconic sculptures (such as the famous seated Buddha in Dharmachakra Mudra).

2. Consider the following statements regarding the historical Ashokan Pillars:

1. These pillars were constructed primarily during the post-Mauryan era to commemorate the victory of local rulers over foreign invaders.
2. The monolithic pillars are composed of sandstone quarried predominantly from the Chunar and Mathura regions.
3. The edicts inscribed on these pillars were written mostly in Classical Sanskrit to make them accessible to the elite priestly classes.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

Answer: (b)

Detailed Explanation:

- **Statement 1 is incorrect:** The Ashokan pillars were carved in the 3rd Century BCE under the direct orders of Emperor Ashoka of the Mauryan Dynasty following his moral transformation after the Kalinga War, not during the post-Gupta era.
- **Statement 2 is correct:** These massive monolithic pillars, ranging from 40 to 50 feet in height, were carved out of single blocks of sandstone sourced from quarries in Chunar and Mathura.
- **Statement 3 is incorrect:** To ensure his moral messages reached the common people, Ashoka's edicts were inscribed in regional scripts and vernacular languages, including Brahmi, Kharosthi, Aramaic, and Greek, rather than being restricted to Classical Sanskrit.

3. Which of the following statements regarding the features of Gangaikonda Cholapuram are correct?

1. It was established by Rajendra Chola I to serve as the imperial capital of the Cholas following his military campaign to the Gangetic plains.
2. The central Brihadisvara Temple built here was dedicated exclusively to Lord Vishnu to commemorate the dynasty's western conquests.
3. The city featured a massive water reservoir known as Chola Gangam, which functioned as a liquid pillar of victory.
4. Archaeological and epigraphic records indicate that the site was abandoned immediately after the death of Rajendra Chola I.

Select the correct answer using the code given below:

- (a) 1 and 3
- (b) 2 and 4 only
- (c) 1, 2 and 4
- (d) 1 and 4 only

Answer: (a)

Detailed Explanation:

- **Statement 1 is correct:** After his successful military expedition to northern India, Rajendra Chola I assumed the title 'Gangaikonda Cholan' and built this new imperial capital city to celebrate the achievement.
- **Statement 2 is incorrect:** The grand Gangaikonda Cholisvaram (Brihadisvara) Temple built at this site is dedicated to Lord Shiva, not Lord Vishnu.
- **Statement 3 is correct:** The massive Chola Gangam water reservoir was filled with water brought from the Ganga river, serving as a symbolic liquid pillar of victory (jalasthambam).
- **Statement 4 is incorrect:** Far from being abandoned quickly, the city served as the thriving administrative, economic, and cultural center of the Chola Empire for over two and a half centuries (from 1025 CE to 1279 CE).

4. Consider the following statements regarding the Maratha Military Landscapes of India, which was inscribed as India's 44th World Heritage Site:

1. The site comprises a strategic network of 12 forts constructed between the 17th and 19th centuries CE.
2. Geographically, all 12 of the designated forts are located within the modern boundaries of Maharashtra.
3. The network includes diverse architectural typologies such as hill forts, island forts, and plateau forts.
4. The fortification system rejected the integration of natural terrain, relying solely on imported European concrete.

Which of the statements given above are correct?

- (a) 1 and 2
- (b) 2 and 4 only
- (c) 1 and 3
- (d) 1, 2 and 4

Answer: (c)

Detailed Explanation:

- **Statement 1 is correct:** The UNESCO inscription recognizes a network of 12 distinct forts built between the 17th and 19th centuries that highlight the defense strategies of the Maratha Empire.
- **Statement 2 is incorrect:** While 11 of the forts are situated in Maharashtra (such as Raigad, Shivneri, and Pratapgad), the 12th component is the historic Gingee Fort, located in Tamil Nadu.
- **Statement 3 is correct:** The nomination showcases a diverse mix of defense styles, categorizing them into hill forts (e.g., Salher, Lohgad), island forts (e.g., Sindhudurg, Khanderi), and plateau/forest forts (Panhala and Pratapgad).
- **Statement 4 is incorrect:** The genius of Maratha military architecture relied almost entirely on adapting to local natural terrain, using local stone and organic design principles rather than foreign concrete.

5. With reference to the historical development of the Golden Temple (Sri Darbar Sahib) in Amritsar, consider the following statements:

1. The initial foundation of the holy city was laid in 1577 CE by Guru Ram Das Ji, the fourth Sikh Guru.
2. The architectural construction of the central shrine was completed under the guidance of Guru Arjan Dev Ji, who also appointed Baba Budha Ji as the first granthi.
3. The foundation stone of the shrine was laid by the Mughal Emperor Akbar, demonstrating early state sponsorship of the monument.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only

(d) 1, 2 and 3

Answer: (a)

Detailed Explanation:

- **Statement 1 is correct:** The land was acquired from local landlords, and the foundational layout of the holy settlement (initially called Ramdasapur) was established in 1577 CE by the fourth Guru, Guru Ram Das Ji.
- **Statement 2 is correct:** Guru Arjan Dev Ji, the fifth Sikh Guru, designed and completed the temple structure in 1604 CE. He compiled the Adi Granth and installed it inside the shrine, naming Baba Budha Ji as the head reader (granthi).
- **Statement 3 is incorrect:** As a testament to interfaith harmony and respect, the foundation stone of the Golden Temple was laid by the famous Muslim Sufi saint from Lahore, Hazrat Mian Mir, not by Emperor Akbar.

6. Consider the following statements regarding the traditional art form of Kathputli Puppetry:

1. It is a traditional form of string puppetry that originated and is primarily practiced in the state of Rajasthan.
2. The puppets are made out of sculpted metal wire and are traditionally operated by the traveling Bhat and Nat communities.
3. The performance serves as an educational and entertainment medium, narrating folklore, stories of warriors, and moral tales.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

Answer: (c)

Detailed Explanation:

- **Statement 1 is correct:** Kathputli is an ancient string puppet tradition native to Rajasthan, with Jaipur, Nagaur, and Sikar serving as major historic centers.
- **Statement 2 is incorrect:** The word Kath means wood and Putli means doll. The puppets are carved out of mango wood and dressed in colorful traditional cloths, not sculpted from metal wire. They are traditionally operated using strings by the indigenous Bhat and Nat communities.
- **Statement 3 is correct:** These puppet shows have served for generations as a community tool to preserve history, share social commentary, and recount the brave deeds of legendary kings and warriors.

7. This traditional performance, rooted in Maori mythology, involves vigorous rhythmic movements such as stamping feet and chanting. It is symbolically associated with Tane-rore, the son of the sun god, whose trembling hand movements represent the shimmering air of hot summer days. Identify this performance:

- (a) Haka Dance
(b) Kattikali Performance
(c) Saman Dance
(d) Kapa Haka Waiata

Answer: (a)

Detailed Explanation:

- **Option (a) is correct:** The Haka is an indigenous posture dance of the Maori people of New Zealand (Aotearoa). According to their mythology, the shimmering heat waves seen on hot summer days represent Tane-rore dancing for his mother, which is represented in the dance by the rapid quivering of the performers hands (wiriwiri).

8. With reference to the ancient Sanskrit treatise Natyashastra, consider the following statements:

1. It is traditionally attributed to Bharata Muni and is popularly regarded as the Fifth Veda.
2. The text is composed entirely in prose sentences, completely avoiding the use of the traditional sloka form.
3. Its core aesthetic contribution is the Rasa theory, which outlines the emotional frameworks essential to performance.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer: (c)

Detailed Explanation:

- **Statement 1 is correct:** Believed to have been compiled between 200 BCE and 200 CE, the Natyashastra is attributed to Bharata Muni. Because it combined elements of speech, song, dance, and emotion to educate society, it was elevated to the status of the Fifth Veda.
- **Statement 2 is incorrect:** The treatise is composed primarily in poetic verse form (slokas) to help with oral transmission and memorization, with only a few prose sentences appearing in later commentary additions.
- **Statement 3 is correct:** The text introduces the foundational Rasa-Bhava framework, explaining how an audience experiences core emotional states (Rasa) through a performer's physical and emotional expressions.

9. Which of the following statements with regard to the historic Vrindavani Vastra is/are correct?

1. It is a magnificent 16th-century silk tapestry produced under the guidance of the saint-reformer Srimanta Sankardeva during Assam's Vaishnavite movement.
2. The textile was woven to depict scenes from the terrestrial military conquests of the Koch king Nara Narayan.

Select the correct answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer: (a)

Detailed Explanation:

- **Statement 1 is correct:** The Vrindavani Vastra is a complex silk tapestry woven in Assam during the 16th century under the direct creative direction of Srimanta Sankardeva, the leader of the regional Bhakti movement.
- **Statement 2 is incorrect:** Though the weaving project was supported by the Koch King Nara Narayan, the tapestry does not feature secular battle scenes. Instead, it depicts religious motifs, specifically scenes from Lord Krishna's childhood in the forests of Vrindavan.

10. Which of the following statements with regard to the traditional Sohrai Art is/are correct?

1. It is a ritual wall painting tradition traditionally practiced by tribal communities such as the Santhal, Munda, and Oraon in Jharkhand.
2. These artworks are created primarily by women on mud walls using natural pigments during harvest festivals to honor livestock and fertility.

Select the correct answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer: (c)

Detailed Explanation:

- **Statement 1 is correct:** Sohrai art is an indigenous wall painting style passed down through generations within the Santhal, Munda, Oraon, and Asur tribes of Jharkhand (especially around Hazaribagh and the Santhal Parganas).
- **Statement 2 is correct:** This art form is traditionally painted by tribal women on the mud walls of their homes using natural earth pigments, clay colors, and chewed bamboo twigs. It is done during post-harvest celebrations to show gratitude to nature, celebrate fertility, and honor their cattle.

Dance / Music / Painting / Festivals / Celebrations

1. With reference to traditional Indian tribal art, consider the following statements:

1. Sohrai is a ritual wall painting tradition practiced predominantly by the Santhal, Munda, and Oraon tribal communities of Jharkhand.
2. It is executed primarily by tribal men using imported synthetic oil paints and modern polymer brushes to ensure structural longevity.
3. The art form is painted during post-harvest festivals to express gratitude, honor livestock, and celebrate agrarian life.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer: (c) 1 and 3 only

Explanation:

- **Statement 1 is correct:** Sohrai is a prominent ritualistic mud-wall painting style belonging to the Santhal, Munda, Oraon, and Asur tribes residing in the Hazaribagh and Santhal Parganas regions of Jharkhand.
- **Statement 2 is incorrect:** Sohrai is entirely a women-led art form. Instead of synthetic paints or commercial brushes, it is created using natural earth pigments (such as red ochre, white kaolin, and black manganese) and applied using basic tools like bamboo twigs, chewed sticks, or cloth rags.
- **Statement 3 is correct:** The paintings are created during crucial harvest intervals (coinciding with Diwali) as a thanksgiving ritual dedicated to cattle wealth, crop fertility, and nature.

2. Consider the following statements regarding North Indian classical music structures:

1. Chautal is a traditional rhythmic cycle consisting of a 12-beat structure deeply associated with the Dhrupad genre.
2. The primary percussion instrument used to accompany and improvise within Chautal compositions is the Tabla.
3. It features an fluid, non-fixed structural pattern called thapi that allows extensive rhythmic freedom.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer: (c) 1 and 3 only

Explanation:

- **Statement 1 is correct:** Chautal is an ancient 12-beat rhythmic framework foundational to the performance of Dhrupad, the oldest surviving grand vocal style of Hindustani classical music.
- **Statement 2 is incorrect:** The primary percussion counterweight for Chautal is the **Pakhawaj** (a two-headed barrel drum), not the Tabla. The deep, heavy resonance of the Pakhawaj is vital for executing the powerful strokes required by the 12-beat dhrupad cycle.
- **Statement 3 is correct:** Unlike modern styles that stick to a rigid theka (fixed repeated drum phase), Chautal compositions often leverage thapi,; a fluid, improvisational pattern giving artists greater freedom.

3. Which of the following statements with regard to the traditional musical instrument Ghumot is/are correct?

1. It is a mud-based membranophone percussion instrument from Goa, designed as a baked earthen pot with an animal skin covering.
2. To strictly comply with wildlife protection regulations, the traditional use of monitor lizard skin has been replaced by goat or buffalo hide.

Select the correct answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer: (c) Both 1 and 2

Explanation:

- **Statement 1 is correct:** The Ghumot is a classic heritage percussion instrument of Goa. It is structured as a pumpkin-shaped clay pot, sun-dried, kiln-fired, and covered on one open side with a taut membrane.
- **Statement 2 is correct:** Historically, the skin of the endangered monitor lizard was preferred for maximum acoustic resonance. Following wildlife protection bans, artisans shifted to using legal substitutes like goat, buffalo skin, or synthetic materials, protecting biodiversity while preserving Goan musical traditions.

4. Which of the following statements with regard to Gond Art is/are correct?

1. It is a globally recognized tribal art form practiced primarily by the Pardhan Gond community across the state of Madhya Pradesh.

2. The style is instantly identifiable by its geometric patterns where the main motifs are filled entirely with dense parallel fields of fine dots and lines.

Select the correct answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer: (c) Both 1 and 2

Explanation:

- **Statement 1 is correct:** Gond art originates from the decorative and storytelling practices of the Pardhan Gond sub-tribe located in the central Indian plateau, specifically across Madhya Pradesh.
- **Statement 2 is correct:** The signature technique of Gond art involves using elaborate, repetitive line-work, decorative dashes, and precise dots to fill in the inner silhouettes of animals, deities, and trees. This gives the artwork a sense of movement and texture.

5. With reference to traditional Indian sports, consider the following statements:

1. Mallakhamb is an ancient aerial gymnastic and martial art form performed on a vertical wooden pole or a hanging rope.
2. The earliest recorded literary description of this sport is found within the 12th-century text Manasollasa, authored by King Someshvara III.
3. Mallakhamb was officially recognized as an Olympic medal event during the recent Berlin Games.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer: (a) 1 and 2 only

Explanation:

- **Statement 1 is correct:** Mallakhamb involves athletes performing high-intensity core balancing acts, yoga postures, and wrestling maneuvers on a vertical pole (usually Sheesham wood) or a suspended rope.
- **Statement 2 is correct:** While archaeological evidence pushes its roots further back, the definitive, oldest surviving written record detailing Mallakhamb appears in the Chalukyan encyclopedia Manasollasa (1129 CE).
- **Statement 3 is incorrect:** Mallakhamb was only featured as a demonstration sport at the Berlin Olympics in 1936 to showcase India's traditional culture, but it was never included as an official competitive Olympic medal event.

6. Which of the following statements with regard to the Sammakka–Saralamma Jatara is/are correct?

1. It is a massive biennial tribal festival celebrated at Eturnagaram Wildlife Sanctuary of Telangana.
2. The historical origin of the festival commemorates the armed resistance of ancestral Koya tribal women against the tax oppression of Kakatiya rulers.

Select the correct answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2

(d) Neither 1 nor 2

Answer: (c) Both 1 and 2

Explanation:

- **Statement 1 is correct:** The Jatara is celebrated every two years at Medaram, located in the Mulugu district of Telangana. Situated deep inside the Eturnagaram Wildlife Sanctuary, it attracts millions of pilgrims, making it one of the largest human gatherings in Asia.
- **Statement 2 is correct:** The festival honors the courage of a mother-daughter duo (Sammakka and Saralamma) from the Koya tribe. According to local lore, they chose martyrdom over bowing down to unfair tax collection systems imposed by the Kakatiya dynasty during a severe drought.

7. With reference to the cultural heritage of North-East India, consider the following statements:

1. Lankhong Puja is an essential socio-religious community festival celebrated by the Tiwa (Lalung) tribe.
2. The primary objective of the festival is to perform community rituals to secure blessings for a prosperous Rabi crop season.
3. The Tiwa community belongs linguistically to the Tibeto-Burman language family and resides across parts of Assam and Meghalaya.

Which of the statements given above are correct?

- (a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

Answer: (d) 1, 2 and 3

Explanation:

- **Statement 1 is correct:** Lankhong Puja is a traditional agricultural and spiritual festival belonging to the Tiwa community (historically called the Lalung).
- **Statement 2 is correct:** The festival is timed around farming cycles, where community prayers and offerings are made to local deities to protect their winter fields and ensure a bountiful Rabi harvest.
- **Statement 3 is correct:** The Tiwas belong to the Tibeto-Burman ethnolinguistic family. They live mainly in the plains and hills of Assam (such as Morigaon and Nagaon) as well as adjoining areas of Meghalaya. All three statements are accurate.

8. Consider the following statements regarding the annual Ambubachi Mela:

1. It is an annual post-monsoon festival held at the historic Kamakhya Temple on the Nilachal Hills in Assam.
2. The celebration centers around the natural phenomenon of earth's fertility, during which no physical idol is worshipped inside the sanctum sanctorum.
3. The present structure of the Kamakhya Temple was reconstructed in the 16th century by Chilarai, a king of the regional Koch dynasty.

Which of the statements given above are correct?

- (a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

Answer: (d) 1, 2 and 3

Explanation:

- **Statement 1 is correct:** The Ambubachi Mela takes place every year at the Kamakhya Temple in Guwahati, positioned atop the sacred Nilachal Hills along the Brahmaputra River.
- **Statement 2 is correct:** The festival is unique because it celebrates the menstruation cycle of the Goddess, symbolizing the creative power of the earth. During these three days, regular temple activities pause, and no physical idol worship takes place. Instead, a natural stone fissure is revered.
- **Statement 3 is correct:** After the original temple structure was heavily damaged by Kala Pahar, it was rebuilt in 1565 CE under the patronage of King Chilarai of the Koch kingdom, combining indigenous and early styles.

9. Which of the following statements with regard to the first-ever BIMSTEC Traditional Music Festival are correct?

1. It was hosted at Bharat Mandapam in New Delhi under the core theme of SaptaSur: Seven Nations, One Melody.
2. The event was organized by the Indian Council for Cultural Relations under the administrative aegis of the Ministry of External Affairs.

Select the correct answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer: (c) Both 1 and 2

Explanation:

- **Statement 1 is correct:** The inaugural BIMSTEC Traditional Music Festival brought together classical and folk musicians from Bangladesh, Bhutan, India, Myanmar, Nepal, Sri Lanka, and Thailand at Bharat Mandapam, New Delhi, under the unifying theme SaptaSur.
- **Statement 2 is correct:** The event was organized by the ICCR under India's Ministry of External Affairs. It fulfilled a diplomatic commitment made during the 2025 regional summit, using cultural exchange as a soft-power tool to strengthen ties among the bay-of-bengal nations.

10. With reference to the Shirui Lily Festival, consider the following statements:

1. The festival is organized annually by the Manipur Tourism Department to encourage eco-tourism and protect an endangered endemic flora species.
2. The festival is hosted in the Ukhrul district, which is the traditional homeland of the Tangkhul Naga tribe.
3. The Shirui Lily is recognized as the official State Flower of Manipur and grows naturally in high-altitude environments.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer: (d) 1, 2 and 3

Explanation:

- **Statement 1 is correct:** First celebrated in 2017, this festival is run by the state's tourism arm each May to showcase local culture and raise awareness about saving the delicate Lily habitat.

- **Statement 2 is correct:** The venue is the Ukhrul district, where the Tangkhul Naga community manages the local ecosystem. The community protects the flower as a cultural symbol linked to their traditional folklore.
- **Statement 3 is correct:** The flower (*Lilium mackliniae*) is endemic to the upper slopes of the Shirui Hill range (at an altitude of around 2,673 meters) and serves as the official State Flower of Manipur. All statements are true.

Personalities in News

1. With reference to the classical Tamil poet-philosopher Thiruvalluvar and his work, the Tirukkural, consider the following statements:

1. The text is structurally categorized into three distinct books: Aram, Porul, and Inbam.
2. The Tirukkural is composed in a lengthy, narrative epic style that avoids short aphorisms or couplets.
3. The philosophical scope of the work addresses practical statecraft, judicial ideals, and universal secular humanism.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer: (c)

Detailed Explanation:

- **Statement 1 is correct:** The Tirukkural is divided cleanly into three sections or books: Aram (dealing with moral virtue), Porul (dealing with socio-economic matters, wealth, and governance), and Inbam (dealing with love and domestic life).
- **Statement 2 is incorrect:** The text is characterized by its remarkably concise poetic structure. It consists of 1,330 short couplets (kurals) using brief, memorable aphorisms, rather than a lengthy or narrative epic style.
- **Statement 3 is correct:** Thiruvalluvar's philosophy is celebrated for its secular and universal humanism. It goes beyond sectarian identities to provide clear guidance on administrative ethics, public welfare, and daily personal conduct.

2. Which of the following statements with regard to Savitribai Phule is/are correct?

1. She co-founded India's first modern girls' school at Bhidewada, Pune, in 1848 alongside Jyotirao Phule.
2. She actively managed and popularized the Satyashodhak Samaj, which championed egalitarian marriages conducted without priests or dowry.

Select the correct answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer: (c)

Detailed Explanation:

- **Statement 1 is correct:** Savitribai Phule is recognized as the first female teacher of modern India. In 1848, she pioneered institutional education for girls and marginalized communities by establishing the landmark school at Bhidewada in Pune.
- **Statement 2 is correct:** She played a central role in organizing and sustaining the Satyashodhak Samaj (Truth Seekers Society). She was instrumental in standardizing alternative Satyashodhak wedding rites that deliberately excluded Brahmin priests and rejected the custom of dowries to promote social equality.

3. Consider the following statements regarding the initiatives and institutional contributions of Netaji Subhas Chandra Bose:

1. He presided over the National Planning Committee in 1938, which advocated state-led industrialization and economic self-reliance.
2. He was elected as the President of the INC at both the Haripura and Tripuri sessions.
3. Following his resignation from the Congress presidency, he immediately joined the Hindu Mahasabha to mobilize right-wing youth.
4. He established the Azad Hind Government in 1943 as a sovereign government-in-exile with its own currency and diplomatic recognition.

Which of the statements given above are correct?

- (a) 1 and 3 only
- (b) 1, 2 and 4
- (c) 2 and 4 only
- (d) 2, 3 and 4

Answer: (b)

Detailed Explanation:

- **Statement 1 is correct:** In 1938, Bose set up the National Planning Committee, which laid the groundwork for state-driven economic planning and industrialization in independent India.
- **Statement 2 is correct:** Bose achieved significant mass popularity within the left wing of the Congress, leading to his election as Congress President at Haripura in 1938 and his re-election at Tripuri in 1939.
- **Statement 3 is incorrect:** After resigning due to ideological differences with the Gandhian faction during the Tripuri crisis, he founded the All India Forward Bloc in 1939 to unite leftist groups within the nationalist movement, not the Hindu Mahasabha.
- **Statement 4 is correct:** In 1943, Bose proclaimed the formation of the Provisional Government of Azad Hind (Free India) in Singapore. This administrative body issued its own currency, set up civil courts, and received formal diplomatic backing from several global powers.

4. Which of the following statements with regard to Maharshi Dayanand Saraswati is/are correct?

1. He established the Arya Samaj in 1875 to revive original Vedic learning and challenge birth-based caste discrimination.
2. His landmark ideological and philosophical views were compiled and published in his most influential work, titled Satyarth Prakash.

Select the correct answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer: (c)

Detailed Explanation:

- **Statement 1 is correct:** Maharshi Dayanand Saraswati founded the Arya Samaj in Bombay in 1875. The movement advocated a return to the Vedas, promoted merit-based social structures, opposed idol worship, and championed women's education.
- **Statement 2 is correct:** His core philosophies, critiques of non-Vedic rituals, and socio-religious reform ideas are preserved in his primary literary work, Satyarth Prakash (The Light of Truth).

5. With reference to the revolutionary nationalist movement in India, consider the following statements regarding Chandrashekhar Azad:

1. He participated in the Kakori Train Conspiracy of 1925 but managed to evade arrest by the colonial police.
2. Following a crackdown on early revolutionary leaders, he reorganized the HRA into the Hindustan Socialist Republican Association (HSRA).
3. To safely direct underground operations in Jhansi, he adopted the secret pseudonym Balraj and disguised himself as a local teacher.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer: (d)

Detailed Explanation:

- **Statement 1 is correct:** Azad was a key planner in the Kakori train robbery of 1925. While prominent co-conspirators were captured and prosecuted, Azad slipped through the police dragnet and moved his base of operations.
- **Statement 2 is correct:** After the HRA was dismantled by colonial arrests, Azad worked alongside revolutionaries like Bhagat Singh to reorganize the group into the Hindustan Socialist Republican Association (HSRA) in 1928, steering its ideology toward socialism.
- **Statement 3 is correct:** Azad used the alias Balraj to sign off on official HSRA manifestos. While hiding near Jhansi, he lived under the alias Harishankar and posed as a village teacher to avoid detection.

6. Consider the following statements regarding the medieval philosopher-saint Madhvacharya:

1. He was the foundational proponent of the Dvaita (dualism) school of Vedanta philosophy.
2. His philosophical framework rejected dualism, arguing that the human soul and God are completely identical.
3. He introduced the doctrine of Pancha-Bheda, which outlines five real and eternal distinctions between God, souls, and matter.
4. He established the Krishna Mutt at Udupi and initiated the enduring Ashta Mathas monastic tradition.

Which of the statements given above are correct?

- (a) 1, 2 and 3
- (b) 2 and 4 only
- (c) 1, 3 and 4
- (d) 1 and 4 only

Answer: (c)

Detailed Explanation:

- **Statement 1 is correct:** Madhvacharya (13th century CE) founded the Dvaita (dualist) school of Vedanta, which offered a distinct alternative to Shankara's Advaita and Ramanuja's Vishishtadvaita.

- **Statement 2 is incorrect:** His philosophy, Tattvavada, is built on realist dualism. It asserts that God (Vishnu) is the sole independent reality, while individual souls and material objects are separate, dependent realities. It rejects monism.
- **Statement 3 is correct:** He formulated the Pancha-Bheda doctrine, which identifies five eternal distinctions: God and Soul, God and Matter, Soul and Matter, Soul and Soul, and Matter and Matter.
- **Statement 4 is correct:** Madhvacharya set up the historic Krishna Mutt in Udupi, Karnataka, and placed it under the care of eight distinct monasteries (Ashta Mathas) to ensure the continuity of his devotional system.

7. Consider the following statements regarding the life and contributions of the ninth Sikh Guru, Sri Guru Tegh Bahadur:

1. He was originally named Tyag Mal and was awarded the title Tegh Bahadur for his valor in the Battle of Kartarpur.
2. He founded the historic settlement of Chakk Nanaki, which later grew into the major Sikh center of Anandpur Sahib.
3. His spiritual hymns and compositions were excluded from the final compilation of the Guru Granth Sahib.
4. He traveled extensively across regions outside Punjab, including Bihar, Bengal, and Assam, to establish community kitchens.

Which of the statements given above are correct?

- (a) 1, 2 and 4
- (b) 1 and 3 only
- (c) 2 and 4 only
- (d) 1, 2, 3 and 4

Answer: (a)

Detailed Explanation:

- **Statement 1 is correct:** Born as Tyag Mal to Guru Hargobind Sahib, his display of swordsmanship at the Battle of Kartarpur (1634) led his father to bestow upon him the name Tegh Bahadur.
- **Statement 2 is correct:** He purchased a plot of land from the ruler of Bilaspur and established Chakk Nanaki between 1665 and 1672. This settlement later became the historic town of Anandpur Sahib.
- **Statement 3 is incorrect:** His literary and spiritual contributions are preserved in the Sikh scripture. His son, Guru Gobind Singh, incorporated 59 shabads and 57 shaloks composed by Guru Tegh Bahadur into the final canon of the Guru Granth Sahib.
- **Statement 4 is correct:** Guru Tegh Bahadur traveled well beyond Punjab into northern and eastern India to spread his teachings, dig community wells, and set up langars for local populations.

8. With reference to the tribal leader and freedom fighter Birsa Munda, consider the following statements:

1. He launched the historic Ulgulan rebellion to protest the colonial disruption of the traditional Khuntkatti land tenure system.
2. He founded the distinct, reformist Birsait sect, which blended tribal traditions with elements of Vaishnavism.
3. Following his martyrdom in 1900, the colonial government passed the Chotanagpur Tenancy Act of 1908 to safeguard tribal land rights.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only

(d) 1, 2 and 3

Answer: (d)

Detailed Explanation:

- **Statement 1 is correct:** Birsa Munda led the Ulgulan movement (1895–1900) across the Chotanagpur region to resist British policies and contractors (dikus) who had undermined the Khuntkatti system (customary joint tribal land ownership).
- **Statement 2 is correct:** He established the Birsait sect to encourage spiritual and social reform. The movement urged tribal communities to abandon superstitions, stop alcohol consumption, and return to an egalitarian lifestyle influenced by Vaishnavism.
- **Statement 3 is correct:** Although the rebellion was suppressed and Birsa Munda died in Ranchi Jail in 1900, the movement compelled the British administration to pass the Chotanagpur Tenancy Act of 1908. This legislation prohibited the sale of tribal lands to non-tribal buyers, offering legal protection to indigenous communities.

9. Which of the following statements with regard to Lokmata Devi Ahilyabai Holkar is/are correct?

1. She governed the Malwa kingdom during the 18th century from her royal capital located at Maheshwar.
2. She actively patronized and founded the famous Maheshwari saree handloom industry.

Select the correct answer using the code given below:

- (a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

Answer: (c)

Detailed Explanation:

- **Statement 1 is correct:** Ahilyabai Holkar assumed the governance of the Malwa region in 1767. She moved her administrative capital to Maheshwar on the banks of the Narmada River, where she established a peaceful and prosperous rule.
- **Statement 2 is correct:** She did not ban local textiles; rather, she actively patronized and founded the famous Maheshwari saree handloom industry. She invited master weavers to her capital and provided them with financial support, establishing a traditional textile craft that remains economically viable today.

10. Identify the 13th-century saint-scholar based on the following historical clues:

1. He was a direct disciple of Madhvacharya and wrote authoritative commentaries on Dvaita Vedanta.
2. He served as an influential minister in the administration of the Kalinga Kingdom.
3. He is traditionally celebrated as the pioneering progenitor of the Haridasa musical and devotional movement.

- (a) Raghavendra Tirtha
(b) Narahari Tirtha
(c) Jayatirtha
(d) Vyasatirtha

Answer: (b)

Detailed Explanation:

- **Option (b) is correct:** Saint Narahari Tirtha (13th century) was a prominent philosopher and scholar within the dualist school of Vedanta. Before committing himself fully to monastic life under

Madhvacharya, he held an administrative post as a high-ranking minister in the Kalinga Kingdom (covering parts of modern Odisha and Andhra Pradesh). He is recognized as the founder of the Haridasa movement, which used devotional music and Kannada literature to share philosophical ideas with the public.

