

UPCATET General Studies Sample Paper-11

Duration: 10 Minutes**Maximum Marks: 80**

Instructions

- This paper contains **20** Multiple Choice Questions.
- Each correct answer carries **+4** mark. Incorrect answer: **-1** marks. Only **one** correct option.
- Unattempted questions carry **0** marks.
- Use of mobile phones, smartwatches, or any electronic gadgets is strictly prohibited.

Q1. Which of the following dynasties constructed the grand Baradari structure within the dynamic fort complex of Kannauj, historically known as Mahodaya Nagar?

- (A) Chandela Dynasty
- (B) Gurjara-Pratihara Dynasty
- (C) Sharqi Dynasty
- (D) Gahadavala Dynasty

Q2. The Chaukhandi Stupa, an ancient Buddhist site marking the spot where Lord Buddha met his first disciples, is located in which district of Uttar Pradesh?

- (A) Varanasi
- (B) Kushinagar
- (C) Shravasti
- (D) Ghazipur

Q3. Which of the following elements is primarily responsible for the phenomenon of temporary hardness in groundwater supplies, frequently observed in the alluvial plains of northern India?

- (A) Calcium and magnesium sulfates



- (B) Calcium and magnesium bicarbonates
- (C) Sodium and potassium chlorides
- (D) Calcium and magnesium nitrates

Q4. Under the provisions of the Indian Constitution, which specific constitutional article governs the appointment, tenure, and responsibilities of the Advocate General for a State like Uttar Pradesh?

- (A) Article 165
- (B) Article 177
- (C) Article 194
- (D) Article 213

Q5. In the context of modern data storage technology, what does the technical acronym 'NVMe' stand for when describing high-speed solid-state drives?

- (A) Network Virtual Memory Engine
- (B) Non-Volatile Memory Express
- (C) Non-Variable Micro Element
- (D) Networked Vector Matrix Extension

Q6. Which prominent river system acts as a natural geographical boundary separating the state of Uttar Pradesh from Haryana along its western border?

- (A) Ghaghara River
- (B) Chambal River
- (C) Yamuna River
- (D) Betwa River

Q7. The Government of India launched the "Pradhan Mantri Matsya Sampada Yojana" (PMMSY) to bring about a Blue Revolution through sustainable and responsible development of the fisheries sector. Uttar Pradesh, despite being a landlocked state, has shown phenomenal growth in inland fisheries, leveraging



its extensive network of canals, community ponds, and waterlogged areas. The state recently received a national award for its proactive implementation of advanced aquaculture practices like Recirculatory Aquaculture Systems (RAS) and biofloc technology, significantly enhancing fish productivity per unit area while conserving water resource ecosystems.

Which ecological and operational advantage does biofloc technology primarily provide to inland aquaculture setups in landlocked regions like Uttar Pradesh?

- (A) Continuous flushing out of water to eliminate microbial presence completely
- (B) High-density fish farming with minimal water exchange by converting nitrogenous waste into microbial protein feed
- (C) Elimination of the need for artificial aeration due to natural deep-water currents
- (D) Complete reliance on chemical fertilizers to maximize phytoplankton growth rates

Q8. The Government of India launched the "Pradhan Mantri Matsya Sampada Yojana" (PMMSY) to bring about a Blue Revolution through sustainable and responsible development of the fisheries sector. Uttar Pradesh, despite being a landlocked state, has shown phenomenal growth in inland fisheries, leveraging its extensive network of canals, community ponds, and waterlogged areas. The state recently received a national award for its proactive implementation of advanced aquaculture practices like Recirculatory Aquaculture Systems (RAS) and biofloc technology, significantly enhancing fish productivity per unit area while conserving water resource ecosystems.

According to the objectives of the PMMSY mentioned or implied in the text, what is the strategic focus of introducing advanced technologies like Recirculatory Aquaculture Systems (RAS) in inland states?

- (A) Enhancing productivity and conserving water resources through intensive and controlled eco-systems
- (B) Diverting large rivers into artificial concrete channels
- (C) Transforming agricultural wetlands exclusively into commercial marine breeding centers



(D) Substituting traditional crop farming entirely with marine deep-sea exploitation methods

Q9. The highly specialized technique of 'Polymerase Chain Reaction' (PCR), extensively utilized in modern environmental biology and diagnostic labs, achieves the exponential amplification of specific DNA sequences using an enzyme isolated from which group of organisms?

- (A) Mesophilic fungi
- (B) Thermophilic bacteria
- (C) Halophilic archaea
- (D) Psychrophilic algae

Q10. The Lead Bank Scheme, which coordinates the banking activities of commercial banks, cooperative banks, and regional rural banks to achieve comprehensive rural development, functions under the direct administrative monitoring of which institution?

- (A) National Bank for Agriculture and Rural Development (NABARD)
- (B) Ministry of Finance, Government of India
- (C) Reserve Bank of India (RBI)

Q11. Which of the following classical dance forms originated and developed historically through the spiritual and cultural traditions of Uttar Pradesh?

- (A) Kathakali
- (B) Odissi
- (C) Kathak
- (D) Sattriya

Q12. The regulatory mechanism known as 'Prompt Corrective Action' (PCA) framework in the Indian financial ecosystem is invoked to maintain the systemic stability of which of the following entities?

- (A) Scheduled Commercial Banks



- (B) Non-Banking Financial Companies handling infrastructure bonds only
- (C) Mutual Fund Houses operating in equity markets
- (D) Microfinance Institutions working without NBFC licenses

Q13. In a dual-boot computing architecture setup, what is the primary operational function of the 'GRUB' software component during the system initialization process?

- (A) Managing dynamic allocation of random-access memory
- (B) Acting as a multi-boot loader that allows the user to select and load an operating system kernel
- (C) Encrypting the user data partition to prevent unauthorised network access
- (D) Compiling high-level programming language code into machine-executable binary

Q14. The unique soil type locally referred to as 'Kabar' or 'Mar', which exhibits a high clay content, deep cracking properties during summers, and high moisture retention capabilities, is predominantly found in which geographical region of Uttar Pradesh?

- (A) Terai Region
- (B) Bhabar Tract
- (C) Vindhyan Plateau
- (D) Bundelkhand Region

Q15. Which specific schedule of the Constitution of India contains provisions regarding the allocation of seats in the Rajya Sabha (Council of States) to the States and Union Territories?

- (A) Third Schedule
- (B) Fourth Schedule
- (C) Fifth Schedule
- (D) Sixth Schedule



Q16. The ongoing transformations in global sports governance have placed a significant emphasis on athlete-centric facilities and indigenous sport revivals. India's recent performance at international multi-sport events has shown a steady upward trajectory, driven largely by grassroots talent discovery initiatives like the 'Khelo India' program. Alongside mainstream Olympic disciplines, there has been a conscious policy shift to formalize and professionalize traditional Indian sports such as Kabaddi, Kho-Kho, and Mallakhamb, creating structured national leagues that offer sustainable career paths to rural athletes.

What is the core strategic objective underlying the formalization and introduction of structured national leagues for traditional sports like Kho-Kho and Mallakhamb?

- (A) Eliminating international Olympic disciplines from regional sports academies
- (B) Replacing standard training modules with non-competitive rural festivals
- (C) Creating structured and sustainable professional career pathways for rural athletic talent
- (D) Privatizing all public sports infrastructure across urban areas exclusively

Q17. The ongoing transformations in global sports governance have placed a significant emphasis on athlete-centric facilities and indigenous sport revivals. India's recent performance at international multi-sport events has shown a steady upward trajectory, driven largely by grassroots talent discovery initiatives like the 'Khelo India' program. Alongside mainstream Olympic disciplines, there has been a conscious policy shift to formalize and professionalize traditional Indian sports such as Kabaddi, Kho-Kho, and Mallakhamb, creating structured national leagues that offer sustainable career paths to rural athletes.

The steady upward trajectory of India's performance at global multi-sport events is fundamentally attributed to which of the following factors?

- (A) Grassroots talent discovery and nurturing initiatives
- (B) High-tech imported training simulators reserved for urban centers
- (C) Reducing the number of sports disciplines allowed at school levels
- (D) Direct transition of athletes to professional leagues without domestic training



- Q18.** When an electronic document is transmitted securely over an untrusted network, what operational role does a 'Cryptographic Hash Function' perform to ensure secure communication?
- (A) It compresses the file size to enhance high-speed network transmission
 - (B) It verifies data integrity by generating a unique fixed-size bit string that changes if the data is altered
 - (C) It automatically translates the document text into multiple international languages
 - (D) It stores a backup copy of the data on a remote cloud management server
- Q19.** The historical site of Alamgirpur, which represents the easternmost extension of the Indus Valley Civilization (Harappan Culture), is located along the banks of which river in Uttar Pradesh?
- (A) Hindon River
 - (B) Sai River
 - (C) Ken River
 - (D) Gomti River
- Q20.** Under the international system of ecological monitoring, the concept of 'Eutrophication' in freshwater bodies is primarily triggered by the excessive run-off of which chemical nutrients from agricultural lands?
- (A) Sodium and Potassium
 - (B) Lead and Mercury
 - (C) Iron and Manganese
 - (D) Nitrogen and Phosphorus



Detailed Solutions**Q1.****Solution****Concept:**

The architectural history of Kannauj (Mahodaya Nagar) reflects its strategic importance along the Ganges trade route. Following the decline of Harsha's empire, control over Kannauj led to the Tripartite Struggle among the major regional powers of early medieval India. The Gurjara-Pratihara dynasty ultimately secured and consolidated their rule over this imperial center.

Solution:

- (a) Kannauj reached its peak political prominence as the imperial capital under the Gurjara-Pratihara rulers between the 8th and 11th centuries, during which it was structurally fortified and expanded.
- (b) The term Baradari refers to a traditional pillared pavilion or structure designed with twelve openings to allow free airflow, a signature style integrated into early fort architectures of Northern India.
- (c) Historical fort modifications within the dynamic ancient complex of Mahodaya Nagar credit the Gurjara-Pratihara with building structural foundations that defined the city's classical defenses.
- (d) While later dynasties like the Sharqis of Jaunpur and the Gahadavalas held sway over parts of central Uttar Pradesh, the foundational identity of Kannauj as a grand imperial fort capital remains fundamentally tied to the Gurjara-Pratihara sovereign administration.
- (e) Therefore, authentic archaeological assessments identify this dynasty as the primary builder of the structural legacy within the old Kannauj citadel boundaries.

Final Answer: Gurjara-Pratihara Dynasty

Answer: (B)

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Q2.

Solution**Concept:**

Buddhist pilgrimage tourism in Uttar Pradesh is anchored around major archaeological monuments built to commemorate significant life events of Lord Buddha. The Chaukhandi Stupa represents a critical geographical marker where Lord Buddha traveled from Bodh Gaya to transition his spiritual journey toward delivering his first sermon.

Solution:

- (a) The Chaukhandi Stupa serves as an ancient monument constructed originally during the Gupta period to mark the precise spot where Lord Buddha reunited with his first five companions (Panchavargiya Bhikkhus).
- (b) This historical meeting preceded his journey to nearby Sarnath, where he set the wheel of law in motion during the Dhammacakkappavattana Sutta.
- (c) Geographically, Sarnath and its surrounding monument clusters, including the Chaukhandi Stupa, fall directly within the administrative boundaries of the Varanasi district.
- (d) While Kushinagar is celebrated as the site of Mahaparinirvana and Shravasti as the site of his maximum rainy season retreats, they are separate districts situated in northern and eastern Uttar Pradesh respectively.
- (e) Thus, due to its immediate proximity to the core Sarnath Buddhist complex, the Chaukhandi Stupa is located and managed within Varanasi.

Final Answer: Varanasi

Answer: (A)

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Q3.

Solution**Concept:**

Water chemistry classifies groundwater hardness into temporary and permanent categories based on dissolved mineral salts. In the fertile Indo-Gangetic alluvial plains, intensive mineral leaching from topsoil layers into aquifers determines the specific chemical composition responsible for temporary water hardness.

Solution:

- (a) Hardness in water is primarily caused by the presence of multivalent metallic cations, chiefly calcium and magnesium, combined with various local anionic species.
- (b) Temporary hardness, also referred to as carbonate hardness, is specifically caused by the presence of dissolved calcium bicarbonate and magnesium bicarbonate salts.
- (c) This form of hardness is designated as temporary because it can be easily removed through physical boiling, which decomposes soluble bicarbonates into insoluble carbonates that precipitate out.
- (d) In contrast, permanent hardness is induced by sulfate, chloride, and nitrate anions of calcium and magnesium, which do not precipitate upon boiling and require chemical treatment processes.
- (e) Because alluvial groundwater interacts continuously with atmospheric carbon dioxide and soil carbonates, the prevalence of temporary hardness is universally linked to calcium and magnesium bicarbonates.

Final Answer: Calcium and magnesium bicarbonates

Answer: (B)

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Q4.

Solution**Concept:**

The constitutional machinery of India provides for an independent legal counsel for state executives, balancing the central legal framework of the Union. Part VI of the Constitution outlines the state executive structure, which includes the office, functions, and constitutional status of the Advocate General.

Solution:

- (a) The office of the Advocate General for the State is the highest legal office within any Indian province, mirroring the role of the Attorney General of India at the federal level.
- (b) Article 165 explicitly provides for the appointment, qualifications, duties, and remuneration terms of the Advocate General, who is appointed directly by the Governor of the state.
- (c) While related articles in the same chapter touch upon executive powers, Article 177 details the rights of the Advocate General to speak and participate in the proceedings of the state legislature.
- (d) Article 194 defines the powers, privileges, and immunities of state legislative houses and their members, whereas Article 213 empowers the Governor to promulgate ordinances during legislative recess.
- (e) Consequently, for managing institutional legal affairs and constitutional representation in Uttar Pradesh, Article 165 remains the single governing article for this executive post.

Final Answer: Article 165

Answer: (A)

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Q5.

Solution**Concept:**

Modern computing architectures require efficient data transfer interfaces to match the extreme operational speeds of solid-state storage drives. Legacy protocols designed for mechanical hard drives created performance bottlenecks, prompting the development of non-volatile memory bus standards.

Solution:

- (a) NVMe is an open logical interface standard developed explicitly to access non-volatile storage media attached via a high-speed PCI Express (PCIe) bus.
- (b) The technical acronym expands directly to Non-Volatile Memory Express, highlighting its optimization for flash-based architectures.
- (c) Unlike old SATA protocols that rely on sluggish AHCI standards, NVMe reduces software overhead and introduces massive parallel command queues to maximize data throughput.
- (d) Alternative choices containing words like Virtual, Variable, or Matrix are incorrect distractions that do not represent official hardware storage nomenclature.
- (e) Because modern servers and laptops demand rapid read-write input-output operations, Non-Volatile Memory Express has emerged as the global industry benchmark for high-performance internal storage devices.

Final Answer: Non-Volatile Memory Express

Answer: (B)

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Q6.

Solution**Concept:**

The river drainage systems of northern India dictate state political boundaries and agricultural zones. The western borderlands of Uttar Pradesh feature distinct river channels originating in the Himalayas that run parallel to other major river basins before merging downstream.

Solution:

- (a) The Yamuna River originates from the Yamunotri glacier in the Himalayas and flows along the northern plains, serving as a natural divider between adjacent states.
- (b) Geographically, it defines a major portion of the long western border that separates Uttar Pradesh from Haryana before it flows down toward Delhi and Agra.
- (c) Other options like the Ghaghara River flow primarily through eastern Uttar Pradesh and Nepal, while the Chambal and Betwa rivers flow from the southern plateau to join the Yamuna as tributaries.
- (d) The precise alignment of the Yamuna along the western sector creates a continuous geographic barrier that separates the agricultural lands of western Uttar Pradesh from Haryana.
- (e) Therefore, regional geography identifies the Yamuna River as the definitive natural border along the state's western periphery.

Final Answer: Yamuna River

Answer: (C)

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Q7.

Solution**Concept:**

Sustainable aquaculture practices are vital for accelerating fish production in landlocked states lacking marine resources. Biofloc technology offers an innovative method to manage water quality and nutrition simultaneously within a closed agricultural system.

Solution:

- (a) Biofloc technology uses a nitrogen-controlled environment where macro-aggregates of bacteria, algae, and organic matter are intentionally maintained in the culture water.
- (b) The core ecological advantage of this setup is that it minimizes water exchange by utilizing a functional carbon-to-nitrogen ratio to recycle waste materials.
- (c) Heterotrophic bacteria within the biofloc consume toxic ammonia and other nitrogenous wastes generated from fish excreta, turning them into nutritious microbial biomass.
- (d) This biomass serves as an in-situ high-protein feed source for the fish, lowering the overall feed conversion ratio and reducing operational production costs.
- (e) For landlocked areas like Uttar Pradesh with limited water availability, high-density farming without constant water flushing provides an ideal, eco-friendly solution.

Final Answer: High-density fish farming with minimal water exchange by converting nitrogenous waste into microbial protein feed

Answer: (B)

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Q8.

Solution**Concept:**

The national Blue Revolution strategy emphasizes technological modernization to optimize fish production in inland states. Implementing controlled aquaculture frameworks allows regional authorities to expand production independent of natural maritime boundaries.

Solution:

- (a) Recirculatory Aquaculture Systems (RAS) represent an intensive fish farming method where culture water is continuously filtered, purified, and reused within a closed loop.
- (b) The primary strategic objective of introducing RAS under the PMMSY is to boost fish productivity per unit area while conserving precious freshwater reserves.
- (c) This technology provides an option to cultivate fish at high densities under strictly controlled environmental parameters, isolating the culture from external weather disruptions.
- (d) The passage explicitly highlights that advanced aquaculture technologies are used to enhance state productivity while conserving vulnerable water resource ecosystems.
- (e) Thus, rather than modifying natural river pathways or marine shipping routes, RAS focuses on intensive, high-yield, and water-efficient inland aquaculture.

Final Answer: Enhancing productivity and conserving water resources through intensive and controlled eco-systems

Answer: (A)

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Q9.**Solution****Concept:**

The Polymerase Chain Reaction (PCR) technique requires a reliable, heat-stable DNA polymerase enzyme to withstand the cyclical thermal denaturation phases of the amplification process. Standard enzymes denature at high temperatures, making specialized microbial isolation necessary.

Solution:

- (a) PCR operates through repeated cycles of heating and cooling, where DNA denaturation routinely requires exposure to extreme temperatures around 94 degrees Celsius.
- (b) The breakthrough in automation came with the extraction of Taq Polymerase from the extremophilic microorganism known as *Thermus aquaticus*.
- (c) *Thermus aquaticus* is a specialized thermophilic bacterium native to geothermal hot springs, possessing enzymes that remain fully functional at elevated temperatures.
- (d) Mesophilic or psychrophilic organisms cannot survive these thermal levels, as their cellular enzymes denature and lose functional structural integrity rapidly.
- (e) Consequently, isolating enzymes from thermophilic bacteria remains the standard biological foundation for conducting high-temperature PCR amplification protocols.

Final Answer: Thermophilic bacteria

Answer: (B)

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Q10.**Solution****Concept:**

Financial inclusion and rural credit deployment in India follow structured institutional hierarchies monitored by central banking authorities. The Lead Bank Scheme coordinates banking operations across rural districts to eliminate gaps in credit delivery.

Solution:

- (a) The Lead Bank Scheme was introduced in 1969 based on recommendations from the Gadgil Study Group and the Nariman Committee to improve rural credit delivery.
- (b) Under this scheme, an individual commercial bank is assigned a specific district to act as a leader in expanding banking services and coordinating local financial programs.
- (c) Although NABARD oversees general rural credit refinancing, the overarching regulatory and administrative monitoring of the Lead Bank Scheme rests with the Reserve Bank of India.
- (d) The RBI issues directive guidelines, sets expansion parameters, and evaluates district credit plans formulated by the designated lead banks.
- (e) Therefore, institutional supervision of this service network falls under the direct authority of the central banking regulator, the Reserve Bank of India.

Final Answer: Reserve Bank of India (RBI)

Answer: (C)

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Q11.

Solution**Concept:**

The cultural legacy of India includes classical performing arts deeply intertwined with regional history and spiritual movements. In Northern India, specifically the plains of Uttar Pradesh, classical dance evolved from rhythmic storytelling in temples to highly refined aesthetic expressions within medieval courts.

Solution:

- (a) Kathak is the premier classical dance form that originated in Uttar Pradesh, tracing its etymological roots back to the Sanskrit word Kathakar, which translates directly to a storyteller.
- (b) Initially performance-based recitals of epic mythologies inside ancient temples, the art form underwent deep structural adjustments during the Bhakti movement by incorporating themes from the Radha-Krishna legend.
- (c) It subsequently transitioned into a sophisticated secular art form under the patronage of the Mughal courts and the Nawabs of Awadh, establishing distinct stylistic lineages or Gharanas like Lucknow and Varanasi.
- (d) Other options present totally different geographical roots, as Kathakali belongs to the state of Kerala, Odissi is native to Odisha, and Sattriya is a Vaishnavite cultural dance originating from Assam.
- (e) Thus, historical and stylistic evolution confirms that Kathak is the classical dance form representing the heritage of Uttar Pradesh.

Final Answer: Kathak**Answer: (C)**[Go Back to Question 11](#)

Q12.

Solution**Concept:**

Financial system regulation demands intervention frameworks to prevent institutional insolvency and maintain public trust. The Reserve Bank of India employs structured monitoring tools to check deteriorating financial health indicators among active banking institutions across the country.

Solution:

- (a) The Prompt Corrective Action framework operates as a structured early intervention mechanism used by the Reserve Bank of India to oversee underperforming financial firms.
- (b) This operational framework triggers specific mandatory and discretionary restrictions when a depository institution hits dangerous levels concerning asset quality, capital adequacy ratios, or profitability.
- (c) The main objective of applying PCA rules is to intervene before an institution faces absolute structural collapse, thereby safeguarding the savings of individual retail depositors.
- (d) The framework is explicitly designed and applied to Scheduled Commercial Banks, keeping their leverage under strict regulatory scrutiny.
- (e) While different provisions are being explored for non-banking units, the primary operational legacy and structural execution of the PCA framework focus entirely on commercial banking networks.

Final Answer: Scheduled Commercial Banks

Answer: (A)

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Q13.**Solution****Concept:**

Computer system architecture handles initialization routines using dedicated software modules that bridge low-level firmware instructions and high-level operating systems. Managing complex multicluster partition booting requires dynamic boot loaders.

Solution:

- (a) GRUB stands for Grand Unified Bootloader, which functions as a flexible and comprehensive boot loader program utilized across Unix-like and multi-operating system environments.
- (b) When a computing machine finishes its baseline hardware self-test routines, the firmware transfers primary execution control directly to the installed boot loader stage.
- (c) The operational task of GRUB is to display a user-accessible configuration menu, allowing manual or automated selection between distinct operating system kernels stored on separate drive partitions.
- (d) Once a specific choice is confirmed, GRUB reads the relevant kernel file from the disk storage medium, loads it directly into system memory, and hands over processor control.
- (e) It does not handle ongoing RAM management, high-level code compilation, or active storage partition encryption, serving solely as an initialization software loader.

Final Answer: Acting as a multi-boot loader that allows the user to select and load an operating system kernel

Answer: (B)

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Q14.**Solution****Concept:**

Pedological variations within Uttar Pradesh are shaped by geographic terrain, historical weathering, and water drainage features. The southern plateau extension presents distinct black soil variants locally known for their peculiar physical reactions to seasonal moisture changes.

Solution:

- (a) The specific soil types categorized locally as Kabar and Mar represent regional varieties of black cotton soil found in the southern geomorphic layouts of the state.
- (b) Characterized by elevated clay concentrations, these soils demonstrate high moisture absorption thresholds, turning highly sticky and cohesive during the monsoon months.
- (c) Conversely, during dry summer conditions, rapid evaporation triggers significant volumetric shrinkage, creating wide and deep vertical cracks across the terrain.
- (d) This landscape dynamic is concentrated in the Bundelkhand Region, covering districts like Jhansi, Banda, Hamirpur, and Jalaun, where plateau weathering dictates soil composition.
- (e) The Terai and Bhabar tracts feature alluvial and gravelly porous soils, while the Vindhyan Plateau has mostly red sandy soils, leaving Bundelkhand as the home of Kabar soil.

Final Answer: Bundelkhand Region

Answer: (D)

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Q15.

Solution**Concept:**

The structural operation of Indian federalism depends on clear constitutional schedules that organize legislative, executive, and state representation. The upper house of parliament requires a balanced distribution of seats based on regional population metrics.

Solution:

- (a) The schedules attached to the Constitution of India act as detailed appendices, classifying operational regulations that clarify main constitutional articles.
- (b) The Fourth Schedule is dedicated to outlining the exact allotment of parliamentary seats within the Rajya Sabha to every individual State and Union Territory.
- (c) This distribution ensures representation balances across the federation, giving larger populations like Uttar Pradesh the highest seat count in the upper house.
- (d) For comparison, the Third Schedule manages the textual forms of official oaths and affirmations taken by public authorities upon assuming constitutional offices.
- (e) The Fifth and Sixth Schedules govern the administration of scheduled and tribal areas, making the Fourth Schedule the only valid option for Rajya Sabha seat allocation.

Final Answer: Fourth Schedule

Answer: (B)

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Q16.**Solution****Concept:**

Analyzing texts on institutional sports administration requires extracting core socioeconomic motivations from policy shifts. Upgrading traditional athletic disciplines into structured corporate systems changes career prospects for rural sporting communities.

Solution:

- (a) The provided text discusses global sports governance changes, pointing to a strategic policy push toward formalizing traditional Indian sports such as Kho-Kho and Mallakhamb.
- (b) According to the document, this deliberate institutional upgrade is aimed at creating structured national leagues to provide reliable professional employment.
- (c) Transforming rural physical pastimes into commercial sporting leagues opens sustainable career options for talented rural athletes who previously lacked paths to financial security.
- (d) The text does not advocate for removing mainstream Olympic disciplines from sports academies, nor does it support privatizing public facilities in urban areas.

Final Answer: Creating structured and sustainable professional career pathways for rural athletic talent

Answer: (C)

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Q17.

Solution**Concept:**

Evaluating institutional texts requires connecting structural outcomes to their primary foundational drivers. India's rising success at international multi-sport competitions is explicitly tied to systematic state interventions at initial development levels.

Solution:

- (a) The passage outlines the upward trajectory of Indian athletes at global sports events and evaluates the factors driving this competitive improvement.
- (b) The text explicitly attributes this positive trend to systematic grassroots talent discovery and development initiatives, highlighting programs like Khelo India.
- (c) Nurturing athletic capabilities early at the community level ensures a steady influx of trained competitors into elite international training frameworks.
- (d) Alternative assumptions, such as restricting access to training or relying on imported simulation technology, are not supported by the narrative context.
- (e) Therefore, the reading confirms that local grassroots identification systems form the core foundation driving these global athletic achievements.

Final Answer: Grassroots talent discovery and nurturing initiatives

Answer: (A)

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Q18.**Solution****Concept:**

Information security across public communication channels depends on mathematical validation techniques to prevent unauthorized document tampering. Cryptographic protocols generate verifiable digital fingerprints to confirm file authenticity.

Solution:

- (a) A cryptographic hash function is a mathematical algorithm that processes an input string of any length and yields a fixed-size output bit string.
- (b) The primary operational feature of this function is that it is a one-way mechanism, making it virtually impossible to reconstruct the original document from its hash.
- (c) It verifies data integrity because even a minor change to the input document will completely alter the resulting hash value, indicating unauthorized modification.
- (d) Recipients of a document can compute its hash value locally and compare it with the transmitted hash to confirm that no data corruption occurred during transit.
- (e) Hash functions are distinct from file compression tools, translation software modules, or cloud storage systems, focusing solely on data validation.

Final Answer: It verifies data integrity by generating a unique fixed-size bit string that changes if the data is altered

Answer: (B)

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Q19.**Solution****Concept:**

Proto-historic archaeology defines settlement boundaries by linking excavated cultural artifacts to river valley ecosystems. The geographic spread of late Harappan sites across western Uttar Pradesh shows how communities settled along specific river banks.

Solution:

- (a) Alamgirpur is a notable archaeological site located in the Meerut district of Uttar Pradesh, marking the ultimate eastern boundary of the Indus Valley Civilization.
- (b) Excavations at this location revealed late Harappan pottery, kiln-burnt bricks, and specific utility items that match the cultural signatures of the core civilization.
- (c) Geographically, this settlement developed along the banks of the Hindon River, a major tributary that runs between the Yamuna and Ganges rivers.
- (d) Other options, like the Sai, Ken, or Gomti rivers, flow through different central or southern parts of the state, away from this late Harappan archaeological cluster.
- (e) Consequently, historical research confirms the Hindon River valley as the natural water system that supported the residents of Alamgirpur.

Final Answer: Hindon River**Answer:** (A)[Go Back to Question 19](#)

Q20.

Solution**Concept:**

Aquatic environmental science monitors how excess chemical elements disrupt nutrient balances within closed freshwater lakes. Agricultural practices often cause heavy nutrient runoff, which alters native aquatic ecosystems.

Solution:

- (a) Eutrophication is an ecological process that occurs when a water body becomes overly enriched with minerals and nutrients, inducing excessive algae growth.
- (b) This phenomenon is primarily triggered by agricultural runoff carrying synthetic fertilizers, which contain high amounts of nitrogen and phosphorus.
- (c) When these elements enter a lake, they act as rapid growth accelerators for phytoplankton, leading to massive algal blooms that cover the water surface.
- (d) These dense blooms block sunlight from reaching deeper layers and consume dissolved oxygen as they decompose, causing hypoxia that degrades the aquatic habitat.
- (e) While trace minerals are present in runoff, nitrogen and phosphorus compounds remain the primary chemical drivers of freshwater eutrophication.

Final Answer: Nitrogen and Phosphorus

Answer: (D)

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Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	B	2	A	3	B	4	A	5	B
6	C	7	B	8	A	9	B	10	C
11	C	12	A	13	B	14	D	15	B
16	C	17	A	18	B	19	A	20	D

