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Logical Reasoning Tricks and Techniques for

Exam: IAS, PCS, UPSC, Bank PO, NDA, RRB, SSC, Indian Air Force, Etc.

LOGIC REASONING- STATEMENT ARGUMENT (English)

Q1: Statement: All mammals are warm-blooded animals.

Argument: Long Method: This statement holds true based on the biological classification of mammals. Mammals are characterized by several distinct features, including having hair or fur, producing milk to nourish their young, and being warm-blooded. Warm-bloodedness, or endothermy, is a key trait of mammals, enabling them to regulate their body temperature internally. This distinguishes them from cold-blooded animals like reptiles, whose body temperature fluctuates with their environment. Examples of warm-blooded mammals include humans, dogs, cats, and whales. Therefore, the argument is valid, supported by biological principles.

Short Method: True; mammals are inherently warm-blooded.

Q2: Statement: All politicians are corrupt.

Argument: Long Method: This statement is a classic example of a hasty generalization fallacy. While it is true that corruption exists in politics, it is unfair and illogical to categorically label all politicians as corrupt. Many politicians enter public service with genuine intentions to serve their constituents and uphold ethical standards. Blanket statements like this overlook the diversity within the political sphere and fail to acknowledge the numerous politicians who operate with integrity. Therefore, the argument is invalid due to its overgeneralization and lack of nuance.

Short Method: Fallacious; hasty generalization.

Q3: Statement: All birds can fly.

Argument: Long Method: This statement is not universally true, as there are several bird species that are flightless. For example, ostriches, penguins, and kiwis are birds that have evolved to be flightless due to environmental adaptations. Flightlessness can occur in birds for various reasons, including habitat specialization, reduced predation pressure, or physiological constraints. Therefore, the argument is invalid, as it overlooks the existence of flightless bird species.

Short Method: False; some birds are flightless.

Q4: Statement: All metals are conductors of electricity.

Argument: Long Method: While many metals are indeed good conductors of electricity due to the presence of free electrons in their atomic structure, it is not universally true for all metals. Some metals, such as lead and mercury, are poor conductors of electricity. Additionally, non-metallic elements like graphite (a form of carbon) and certain metal alloys exhibit conductivity properties. Therefore, the argument is invalid, as it oversimplifies the relationship between metals and electrical conductivity.

Short Method: False; exceptions exist, like lead and mercury.

Q5: Statement: All squares are rectangles.

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Argument: Long Method: This statement is true based on the definition of shapes in geometry. A square is a special type of rectangle where all four sides are of equal length and all four angles are right angles. Therefore, by definition, every square meets the criteria to be classified as a rectangle. However, not all rectangles are squares, as rectangles can have unequal sides while still maintaining right angles. Therefore, the argument is valid, grounded in geometric principles.

Short Method: True; squares are a subset of rectangles.

Q6: Statement: All snakes are venomous.

Argument: Long Method: This statement is false and represents a classic example of a sweeping generalization fallacy. While some snake species are venomous and possess specialized glands for producing venom, not all snakes are venomous. There are numerous non-venomous snake species, such as pythons, boas, and garter snakes, which rely on constriction or other means to subdue their prey. Therefore, the argument is invalid due to its overgeneralization and failure to account for the diversity of snake species.

Short Method: Incorrect; many snakes are non-venomous.

Q7: Statement: All swans are white.

Argument: Long Method: This statement was historically believed to be true until the discovery of black swans in Australia. The existence of black swans disproved the assumption that all swans are white. This concept illustrates the importance of empirical evidence in challenging and refining established beliefs. Therefore, the argument is invalid based on empirical observations that contradict the statement.

Short Method: Falsified by the existence of black swans.

Q8: Statement: All triangles have three sides.

Argument: Long Method: This statement is true by definition, as triangles are geometric shapes characterized by having three sides. The sides may vary in length, and the angles may differ, but a figure with three straight sides connected to form three angles will always be classified as a triangle. Therefore, the argument is valid, grounded in the definition of triangles in geometry.

Short Method: True; definition of a triangle.

Q9: Statement: All whales are fish.

Argument: Long Method: This statement is false and reflects a common misconception. Whales are mammals, not fish. While they share some superficial similarities with fish, such as living in aquatic environments and having streamlined bodies, whales are warm-blooded, give birth to live young, and nurse their offspring with milk—characteristics that classify them as mammals. Therefore, the argument is invalid due to its factual inaccuracy.

Short Method: Incorrect; whales are mammals, not fish.

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Q10: Statement: All roses are red.

Argument: Long Method: This statement is a poetic generalization rather than a factual assertion. While the phrase "roses are red" is commonly associated with romantic imagery, roses actually come in a variety of colors, including white, yellow, pink, and even blue (through genetic modification). Therefore, the argument is invalid due to its oversimplified and inaccurate depiction of rose colors.

Short Method: Incorrect; roses come in various colors.

Q11: Statement: All lawyers are dishonest.

Argument: Long Method: This statement is a sweeping generalization that unfairly characterizes an entire profession based on the actions of a few individuals. While dishonesty may exist within any profession, it is illogical and unjust to attribute this trait to all lawyers. Many lawyers uphold ethical standards and advocate for justice and truth in their practice. Stereotyping lawyers as universally dishonest overlooks the diversity of individuals within the legal profession and fails to recognize their contributions to society. Therefore, the argument is invalid due to its overgeneralization and lack of evidence.

Short Method: Unfair generalization; not all lawyers are dishonest.

Q12: Statement: All spiders are venomous.

Argument: Long Method: This statement is false and represents a common misconception. While many spider species possess venom glands and use venom to immobilize their prey, not all spiders are venomous to humans. In fact, the majority of spider bites are harmless to humans, with only a small percentage causing significant medical issues. Furthermore, some spider species lack venom glands altogether. Therefore, the argument is invalid due to its oversimplification and failure to account for the diversity of spider species and their behaviors.

Short Method: Incorrect; not all spiders are venomous.

Q13: Statement: All diamonds are expensive.

Argument: Long Method: While diamonds are often associated with luxury and high value, not all diamonds are inherently expensive. The value of a diamond depends on several factors, including its carat weight, cut, clarity, and color (known as the 4Cs). Additionally, synthetic diamonds created through laboratory processes can be significantly less expensive than natural diamonds. Furthermore, industrial-grade diamonds used for non-jewelry purposes are relatively inexpensive. Therefore, the argument is invalid due to its oversimplification and failure to consider the diverse range of diamond types and values.

Short Method: Oversimplified; diamond value varies.

Q14: Statement: All crows are black. Argument:

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Long Method: This statement was historically believed to be true until the discovery of albino and leucistic crows, which lack the pigment melanin that gives crows their black coloration. The existence of white crows challenges the assumption that all crows are black, highlighting the importance of empirical observation in refining scientific knowledge. Therefore, the argument is invalid based on empirical evidence that contradicts the statement.

Short Method: Falsified by the existence of white crows.

Q15: Statement: All swimmers can float.

Argument: Long Method: This statement is false, as not all swimmers possess the ability to float. Floating depends on various factors, including body composition, buoyancy, and swimming technique. While many people can learn to float with proper training and technique, some individuals naturally sink due to higher body density or lack of buoyant fat. Additionally, factors such as panic, fatigue, or lack of coordination can affect a swimmer's ability to float. Therefore, the argument is invalid due to its oversimplification and failure to account for individual differences in swimming ability.

Short Method: Incorrect; floating ability varies among swimmers.

Q16: Statement: All bananas are fruits.

Argument: Long Method: This statement is true based on the botanical definition of fruits. In botanical terms, fruits are the mature ovary or ovaries of a flowering plant, typically containing seeds. Bananas meet this criteria, as they develop from the ovaries of banana flowers and contain seeds (although many cultivated varieties have reduced or non-existent seeds). Therefore, by botanical classification, bananas are indeed fruits. However, in culinary contexts, bananas are often treated as a starchy fruit due to their sweet flavor and use in desserts and cooking.

Short Method: True; bananas are botanical fruits.

Q17: Statement: All mammals lay eggs.

Argument: Long Method: This statement is false. While it is true that some mammals, such as monotremes (e.g., platypuses and echidnas), lay eggs, the vast majority of mammals give birth to live young. Most mammals are classified as viviparous, meaning they give birth to live offspring that develop internally in the mother's uterus. The misconception that all mammals lay eggs stems from a misunderstanding of mammalian reproduction and the diverse reproductive strategies found within the class Mammalia. **Short Method:** Incorrect; most mammals give birth to live young.

Q18: Statement: All trees shed their leaves in autumn.

Argument: Long Method: This statement is false. While many deciduous trees shed their leaves in autumn as part of their seasonal cycle, not all trees exhibit this behavior. Evergreen trees, such as pine, cedar, and spruce trees, retain their foliage year-round and do not undergo a distinct leaf-shedding period in autumn. Additionally, some deciduous trees may retain their leaves longer into the winter

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months or shed leaves at different times of the year, depending on environmental factors and geographical location. Therefore, the argument is invalid due to its oversimplification and failure to account for the diversity of tree species and their behaviors.

Short Method: Incorrect; evergreen trees retain leaves.

Q19: Statement: All metals are magnetic.

Argument: Long Method: This statement is false. While some metals, such as iron, nickel, and cobalt, are naturally magnetic, not all metals exhibit magnetic properties. Metals like aluminum, copper, and gold are non-magnetic under normal conditions. The ability of a metal to become magnetized depends on its atomic structure and the presence of unpaired electrons that contribute to magnetic alignment. Magnetic behavior is a property specific to certain metals and alloys and is not a universal characteristic of all metals. Therefore, the argument is invalid due to its oversimplification and failure to acknowledge the diversity of magnetic and non-magnetic metals.

Short Method: False; not all metals are magnetic.

Q20: Statement: All snakes are dangerous.

Argument: Long Method: This statement is a gross oversimplification and is false. While some snake species are venomous and pose a potential threat to humans, the majority of snake species are non-venomous and harmless. Additionally, even venomous snakes will typically avoid confrontation with humans unless provoked or threatened. The perception of snakes as universally dangerous stems from fear and misunderstanding rather than factual evidence. Therefore, the argument is invalid due to its overgeneralization and failure to consider the diversity of snake species and their behaviors.

Short Method: Incorrect; many snakes are harmless.

Q21: Statement: All novels are fiction.

Argument: Long Method: This statement is false. While many novels are works of fiction, depicting imaginary stories and characters, not all novels fall into this category. Non-fiction novels, also known as literary non-fiction or narrative non-fiction, present factual information and real-life events in a narrative format similar to fiction. Examples of non-fiction novels include autobiographies, biographies, historical accounts, and travel narratives. Therefore, the argument is invalid due to its oversimplification and failure to acknowledge the diversity of literary genres.

Short Method: Incorrect; non-fiction novels exist.

Q22: Statement: All insects have six legs.

Argument: Long Method: This statement is generally true but with exceptions. Most insects exhibit a body plan characterized by three distinct body segments (head, thorax, and abdomen) and six legs. However, there are exceptions to this rule. Some insect species, such as certain beetles, may have modified forelimbs or lack functional legs altogether due to evolutionary adaptations. Additionally,

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abnormalities or mutations can lead to variations in leg number. Overall, while the six-legged body plan is common among insects, exceptions exist within the insect class.

Short Method: Mostly true; some exceptions exist.

Q23: Statement: All metals are solids at room temperature.

Argument: Long Method: This statement is false. While many metals are indeed solid at room temperature, some metals exhibit different states of matter under standard conditions. For example, mercury is a metal that is liquid at room temperature. Additionally, certain alkali metals, such as cesium and francium, have melting points close to or slightly above room temperature, leading to a liquid state under certain conditions. Therefore, the argument is invalid due to its oversimplification and failure to account for the diverse physical properties of metals.

Short Method: Incorrect; mercury is liquid at room temperature.

Q24: Statement: All planets orbit the sun.

Argument: Long Method: This statement is true within the context of our solar system. In the heliocentric model of the solar system, all planets, including Earth, orbit the sun due to the gravitational attraction between the sun and the planets. However, there are other celestial bodies, such as moons, asteroids, and comets, that orbit planets rather than the sun directly. Therefore, while the statement is true for planets in our solar system, it may not apply universally to all celestial bodies.

Short Method: True for planets in our solar system.

Q25: Statement: All fungi are plants.

Argument: Long Method: This statement is false based on biological classification. While fungi and plants share some superficial similarities, such as immobility and the ability to produce spores, they belong to distinct biological kingdoms. Fungi are classified in the kingdom Fungi, while plants are classified in the kingdom Plantae. Fungi lack chlorophyll and do not perform photosynthesis like plants do. Instead, they obtain nutrients through absorption from their environment. Therefore, the argument is invalid due to its misclassification of fungi as plants.

Short Method: Incorrect; fungi belong to a separate kingdom.

Q26: Statement: All mammals have fur or hair.

Argument: Long Method: This statement is generally true but with exceptions. Most mammals possess fur or hair, which serves various functions such as insulation, camouflage, and sensory perception. However, there are exceptions to this rule. For example, aquatic mammals like whales and dolphins have evolved streamlined bodies and lack external fur or hair. Additionally, certain mammals, such as naked mole rats, have very sparse or absent hair due to adaptations to their environment. Overall, while fur or hair is characteristic of most mammals, exceptions exist within the class Mammalia.

Short Method: Mostly true; some exceptions exist.

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Q27: Statement: All metals are malleable.

Argument: Long Method: This statement is generally true but with exceptions. Many metals exhibit malleability, meaning they can be hammered, rolled, or pressed into thin sheets without breaking. This property is due to the metallic bonding and crystalline structure of metals, which allows for plastic deformation under pressure. However, some metals are brittle and lack malleability. For example, most transition metals in their pure form are malleable, while certain metalloids like arsenic and antimony are brittle. Therefore, while malleability is common among metals, exceptions exist depending on the specific metal and its properties.

Short Method: Mostly true; some exceptions exist.

Q28: Statement: All clouds are made of water vapor.

Argument: Long Method: This statement is partially true but oversimplified. Clouds are primarily composed of tiny water droplets or ice crystals suspended in the atmosphere. These droplets form through condensation of water vapor onto aerosol particles, dust, or nuclei. However, clouds can also contain other substances besides water vapor, such as pollutants, dust, and volcanic ash. Additionally, certain types of clouds, such as noctilucent clouds and nacreous clouds, form at high altitudes where temperatures are too cold for water vapor to exist in its gaseous state, instead consisting of ice crystals. Therefore, while water vapor is a major component of clouds, other factors contribute to cloud formation and composition.

Short Method: Mostly true; clouds primarily contain water vapor.

Q29: Statement: All rocks are hard.

Argument: Long Method: This statement is generally true but with exceptions. Most rocks exhibit hardness due to their mineral composition and crystalline structure. However, there are exceptions to this rule. Some rocks, such as chalk and certain types of limestone, are relatively soft and can be easily scratched or broken. The hardness of a rock depends on factors such as mineral composition, grain size, and geological processes. Therefore, while hardness is a common characteristic of rocks, exceptions exist depending on the specific type of rock.

Short Method: Mostly true; some exceptions exist.

Q30: Statement: All birds can fly.

Argument: Long Method: This statement is false. While the ability to fly is a defining characteristic of many bird species, not all birds are capable of flight. Flightless birds, such as ostriches, emus, and penguins, have evolved adaptations that preclude them from flight. These adaptations may include reduced wing size, increased body mass, or specialized anatomical features for terrestrial or aquatic locomotion. Additionally, some bird species, such as chickens and turkeys, have been domesticated and bred for traits that prioritize meat production over flight capability. Therefore, while flight is common among birds, flightlessness is a notable exception.

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Short Method: False; flightless birds exist.

Q31: Statement: All fish live in water.

Argument: Long Method: This statement is generally true, as fish are aquatic vertebrates adapted to life in water. However, there are exceptions to this rule. Certain fish species, such as lungfish and mudskippers, possess physiological adaptations that allow them to survive in terrestrial environments for extended periods. Lungfish, for example, have modified swim bladders that function as primitive lungs, enabling them to breathe air. Mudskippers have the ability to breathe through their skin and retain moisture, allowing them to navigate both land and water. Therefore, while the vast majority of fish are indeed aquatic, exceptions exist among specialized species.

Short Method: Mostly true; some fish can survive on land.

Q32: Statement: All mammals give birth to live young.

Argument: Long Method: This statement is generally true but with exceptions. Most mammals are classified as viviparous, meaning they give birth to live offspring that develop internally in the mother's uterus. However, there are exceptions to this reproductive strategy. Monotremes, such as the platypus and echidna, are egg-laying mammals known as oviparous mammals. These unique mammals lay eggs that hatch outside the mother's body, representing a transitional form between egg-laying reptiles and live-bearing mammals. Therefore, while live birth is common among mammals, exceptions exist within certain taxonomic groups.

Short Method: Mostly true; monotremes are egg-laying mammals.

Q33: Statement: All metals are good conductors of electricity.

Argument: Long Method: This statement is generally true but with exceptions. Many metals are indeed good conductors of electricity due to the mobility of free electrons within their atomic structure. However, there are exceptions to this rule. Some metals, such as lead and bismuth, are poor conductors of electricity due to their high electrical resistance. Additionally, metal alloys can exhibit varied electrical conductivity depending on their composition and microstructure. Therefore, while metals are commonly used in electrical applications, exceptions exist among certain metal elements and alloys.

Short Method: Mostly true; some metals are poor conductors.

Q34: Statement: All reptiles lay eggs.

Argument: Long Method: This statement is generally true but with exceptions. Most reptiles are oviparous, meaning they lay eggs to reproduce. However, there are exceptions to this reproductive strategy. Some reptiles, such as certain species of snakes and lizards, are viviparous, giving birth to live young instead of laying eggs. Viviparity in reptiles has evolved independently in multiple lineages and is often associated with colder climates or specific ecological niches. Therefore, while egg-laying is common among reptiles, viviparous reproduction occurs in certain reptilian taxa.

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Short Method: Mostly true; some reptiles give live birth.

Q35: Statement: All cells contain DNA.

Argument: Long Method: This statement is generally true but with exceptions. DNA (deoxyribonucleic acid) is the genetic material found in most cells of living organisms, responsible for storing and transmitting genetic information. However, there are exceptions to the presence of DNA in cells. Some specialized cell types, such as mature red blood cells (erythrocytes) in mammals, lack nuclei and therefore do not contain DNA. Additionally, certain viruses, while not considered cells, contain genetic material such as DNA or RNA. Therefore, while DNA is ubiquitous in most cellular life forms, exceptions exist in specialized cell types and viral entities.

Short Method: Mostly true; exceptions in specialized cells.

Q36: Statement: All prime numbers are odd.

Argument: Long Method: This statement is false. While it is true that some prime numbers are odd (e.g., 3, 5, 7), not all prime numbers exhibit this characteristic. The number 2, for example, is the only even prime number, as it is divisible only by 1 and itself. Additionally, prime numbers greater than 2 alternate between being odd and even. Therefore, while many prime numbers are odd, exceptions exist among prime numbers themselves.

Short Method: Incorrect; 2 is an even prime number.

Q37: Statement: All plants perform photosynthesis.

Argument: Long Method: This statement is generally true but with exceptions. Photosynthesis is the process by which green plants and some other organisms use sunlight to synthesize nutrients from carbon dioxide and water. While the majority of plants perform photosynthesis, there are exceptions to this rule. Parasitic plants, such as dodder and broomrape, obtain nutrients by parasitizing the photosynthetic tissues of other plants and do not perform photosynthesis themselves. Additionally, certain non-photosynthetic plants, such as Indian pipe and corpse flower, obtain nutrients through alternative means such as mycorrhizal fungi or heterotrophic feeding. Therefore, while photosynthesis is common among plants, exceptions exist among specialized plant species.

Short Method: Mostly true; exceptions in parasitic and non-photosynthetic plants.

Q38: Statement: All continents are located entirely in one hemisphere.

Argument: Long Method: This statement is false. Continents are large landmasses on Earth's surface, and several span multiple hemispheres. For example, the continents of Africa, Asia, Europe, and North America are located in both the Northern and Southern Hemispheres. Additionally, some continents, such as South America and Australia, are located primarily in one hemisphere but extend into the opposite hemisphere to varying degrees. Therefore, while continents may be predominantly located in one hemisphere, their boundaries can cross hemispheric lines.

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Short Method: Incorrect; continents span multiple hemispheres.

Q39: Statement: All gases are invisible.

Argument: Long Method: This statement is false. While many gases are indeed invisible to the naked eye, there are exceptions to this rule. Some gases exhibit coloration or opacity under certain conditions. For example, chlorine gas has a yellow-green color, bromine vapor is reddish-brown, and sulfur dioxide gas is yellowish. Additionally, gases can become visible when they condense into droplets or form aerosols, as seen in fog, mist, or smoke. Therefore, while invisibility is common among gases, exceptions exist depending on the specific gas and environmental factors.

Short Method: Mostly true; some gases are visible.

Q40: Statement: All mammals have mammary glands.

Argument: Long Method: This statement is generally true but with exceptions. Mammary glands are specialized glands that produce milk to nourish offspring, and they are a defining characteristic of mammals. However, there are exceptions to the presence of mammary glands. Male mammals typically possess rudimentary mammary tissue but lack functional mammary glands. Additionally, certain species of monotremes, such as the platypus and echidna, lack nipples.

Short Method: Mostly true; mammary glands are characteristic of mammals.

Q41: Statement: All deserts are hot and sandy.

Argument: Long Method: This statement is false. While many deserts are indeed characterized by hot temperatures and sandy terrain, there are exceptions to this generalization. Deserts can be classified into different types based on their geographical location, climate, and dominant surface features. For example, cold deserts, such as the Gobi Desert in Asia and the Antarctic Desert, experience low temperatures and may consist of rocky or icy landscapes rather than sand dunes. Additionally, coastal deserts, like the Atacama Desert in South America, can have cool temperatures and rocky shores rather than extensive sandy areas. Therefore, while hot and sandy deserts are common, variations exist among desert ecosystems.

Short Method: Incorrect; deserts vary in temperature and terrain.

Q42: Statement: All planets in the solar system have moons.

Argument: Long Method: This statement is false. While many planets in the solar system have moons or natural satellites, not all planets possess this feature. For example, Mercury and Venus, the two innermost planets, do not have any moons. Additionally, certain dwarf planets, such as Pluto, have moons despite not being classified as full-fledged planets. Therefore, while moons are common among planets, exceptions exist among certain planetary bodies.

Short Method: Incorrect; some planets lack moons.

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