

ForumIAS

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Prelims Marathon

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HISTORY
ECONOMICS
POLITY
SCIENCE AND TECHNOLOGY
GEOGRAPHY AND ENVIRONMENT

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Major Volcanoes

1. Consider the following statements regarding famous active volcanoes:

1. Mount Vesuvius is a destructive stratovolcano near Naples that entirely buried the ancient Roman cities of Pompeii and Herculaneum during its 79 AD eruption.
2. Mount St. Helens, located in the Cascade Range of the USA, is a shield volcano famous for its highly documented 1980 effusive basaltic eruption.
3. Mount Etna, located on the island of Sicily, stands as Europe's tallest and longest-recorded active stratovolcano.

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:

- **Statement 1 is correct:** Mount Vesuvius is a classic composite volcano located on the Gulf of Naples. Its historic eruption in 79 AD released a massive cloud of ash and pyroclastic flows, sealing Pompeii and Herculaneum in a layer of volcanic matter.
- **Statement 2 is incorrect:** Mount St. Helens is a stratovolcano (composite volcano), not a shield volcano, and its famous 1980 eruption was a highly explosive lateral blast caused by a massive debris avalanche, not a gentle, effusive basaltic flow.
- **Statement 3 is correct:** Mount Etna is a highly active stratovolcano situated on the east coast of Sicily, Italy. It is the largest active volcano in Europe, with recorded history of eruptions dating back to 1500 BC.

2. Which of the following statements with regard to volcanic structures is/are correct?

1. Shield volcanoes feature steep, precipitous slopes and are built by high-viscosity, silica-rich lava flows.
2. Stratovolcanoes are composite structures composed of alternating layers of hardened lava flows, volcanic ash, and tephra.
3. Cinder Cone volcanoes are typically small, steep-sided cones constructed from loose pyroclastic debris ejected during explosive eruptions.

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

Correct Answer: (b)

Explanation:

- **Statement 1 is incorrect:** Shield volcanoes have broad, gently sloping sides (resembling a warrior's shield) and are formed by the eruption of low-viscosity, low-silica basaltic lava that flows easily over long distances, not high-viscosity lava.
- **Statement 2 is correct:** Stratovolcanoes (composite volcanoes) develop their characteristic steep profiles because they are built from sequential layers of thick, sticky lava flows alternating with explosive deposits of ash, cinders, and volcanic rocks.

- **Statement 3 is correct:** Cinder cones are the simplest type of volcano. They build up when gas-charged lava is blown violently into the air, breaks into small fragments (cinders), and falls back around the vent to form a circular or oval cone with a central bowl-shaped crater.

3. Which of the following statements with regard to volcanic landforms is/are correct?

1. A Caldera is a large volcanic crater formed by the high-pressure accumulation and swelling of magma prior to an explosive eruption.
2. Submarine volcanoes are predominantly clustered along divergent plate boundaries where they actively contribute to the creation of new seafloor at mid-ocean ridges.

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: (b)

Explanation:

- **Statement 1 is incorrect:** A caldera is formed by the collapse of the summit structure of a volcano after a massive eruption empties the underlying magma chamber, leaving it unsupported. It is caused by structural collapse, not upward swelling or accumulation.
- **Statement 2 is correct:** Submarine volcanoes are highly concentrated along the global mid-ocean ridge systems (such as the Mid-Atlantic Ridge) where tectonic plates pull apart, allowing mantle material to rise, melt, and form new oceanic crust.

4. Consider the following statements regarding Indonesian volcanism:

1. Mount Merapi is a highly active stratovolcano situated on the island of Java that poses a continuous pyroclastic threat to the nearby city of Yogyakarta.
2. The historic 1883 explosive eruption of Krakatoa occurred in the Malacca Strait, generating megatsunamis and acoustic sound waves that travelled unhindered to Europe.

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:** Mount Merapi (meaning Mountain of Fire) is located in Central Java, Indonesia. It regularly experiences dangerous pyroclastic flows, making it an immediate threat to the dense population centers below it, particularly Yogyakarta.
- **Statement 2 is incorrect:** This contains two geographic/factual traps. Krakatoa is located in the Sunda Strait (separating the islands of Java and Sumatra), not the Malacca Strait. While the sounds were heard up to 4,800 km away in the Indian Ocean (such as Rodriguez Island), they were not audibly heard directly in Europe.

5. Which of the following statements with regard to global volcanic systems is/are correct?

1. The 1815 eruption of Mount Tambora in Indonesia stands as the most powerful volcanic eruption in recorded human history, directly triggering the global Year Without a Summer in 1816.

2. The Yellowstone Caldera in the western United States is a massive continental supervolcano responsible for prehistoric eruptions that distributed ash over large areas of North America.
3. Both Mount Tambora and the Yellowstone Caldera are classified as young, oceanic shield volcanoes formed by low-silica hotspot volcanism.

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: (a)

Explanation:

- **Statement 1 is correct:** The 1815 eruption of Mount Tambora on Sumbawa Island had a Volcanic Explosivity Index (VEI) of 7. The massive volume of atmospheric sulfur aerosols it generated blocked solar radiation, dropping global temperatures and causing severe agricultural failure across Europe and North America in 1816.
- **Statement 2 is correct:** Yellowstone is a continental supervolcano. Its system has produced three prehistoric super-eruptions (2.1 million, 1.3 million, and 640,000 years ago) that blanketed the North American continent in volcanic ash.
- **Statement 3 is incorrect:** Mount Tambora is a stratovolcano, and Yellowstone is a continental caldera system. Neither is an oceanic shield volcano, and both are driven by highly explosive, high-silica magma systems, not low-silica fluid basaltic flows.

6. Consider the following statements regarding Mauna Loa and Mount Fuji:

1. Mauna Loa in Hawaii is recognized as the largest active volcano on Earth by mass and volume, rising from a deep oceanic floor base.
2. Mount Fuji is a highly symmetrical active shield volcano located on the island of Honshu, built by ancient continental rifting.
3. While Mauna Loa erupts via effusive, low-viscosity lava flows, Mount Fuji is a subduction-zone stratovolcano capable of explosive eruptions.

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:

- **Statement 1 is correct:** Mauna Loa is a massive shield volcano. Its subaerial height is 4,169 meters (13,678 feet), but when measured from its true base on the ocean floor, it stands over 9,000 meters tall, making it the largest active volcano by volume.
- **Statement 2 is incorrect:** This is a morphological/tectonic trap. Mount Fuji is a **stratovolcano** (composite volcano), not a shield volcano, and it is located above a complex triple subduction zone junction (Pacific, Philippine Sea, and Eurasian plates), not a continental rift valley.
- **Statement 3 is correct:** Mauna Loa's hotspot location generates hot, fluid basaltic lava (effusive). Mount Fuji, being a subduction-zone volcano, contains higher-viscosity and higher-silica andesitic/basaltic mixtures that make its eruptive potential explosive.

7. Consider the following reference matrix regarding volcanic features within Indian territory:

Name	Location	Type
Barren Island	Andaman and Nicobar Islands	Active Stratovolcano
Narcondam Island	Andaman and Nicobar Islands	Dormant Stratovolcano
Deccan Plateau	Andhra Pradesh, Karnataka, Maharashtra, Telangana	Extinct Caldera
Baratang Island	Andaman and Nicobar Islands	Frequently Active; Mud Volcano

How many of the statements given above are correct?

- (a) Only two statements
- (b) Only three statements
- (c) All four statements
- (d) None of the statements

Correct Answer: (c)

Explanation:

- Barren Island. It is located in the Andaman Sea along a highly active subduction zone arc. It remains the only verified active subaerial magmatic volcano in South Asia, with its most recent eruptive phase well-documented into 2025.
- The Deccan Traps are classified as a Large Igneous Province (LIP) formed by massive fissure eruptions (highly fluid, low-viscosity basaltic lava flooding out of deep crustal cracks over millions of years). They are not an extinct caldera, which is a cauldron-like volcanic feature formed by the structural collapse of a magma chamber summit.
- Unlike the magmatic systems of Barren and Narcondam, Baratang is world-renowned for its active mud volcanoes (known locally as Jalki). These are low-temperature surficial structures formed when underground high-pressure tectonic gases (mainly methane) and water force mud slurries to blast upwards through the surface crust.

8. Which of the following statements with regard to global volcanic elevations is/are correct?

1. Ojos del Salado, situated in the Andes along the Argentina–Chile border, is verified as the highest active volcano on Earth.
2. The Taal Volcano, located on the island of Mindanao in the Philippines, is globally recognized as the lowest and smallest active volcano.
3. Despite its extremely low elevation, the Taal Volcano remains historically destructive due to its hydrovolcanic (phreatomagmatic) eruption mechanics.

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)

Explanation:

- **Statement 1 is correct:** Nevado Ojos del Salado stands at 6,893 meters above sea level in the Andes mountains. It features active fumaroles and is universally documented as the highest active volcano globally.
- **Statement 2 is incorrect:** The Taal Volcano is located on the island of Luzon, approximately 50 kilometers south of Manila, not on the southern island of Mindanao. It is, however, recognized as one of the lowest and smallest active volcanoes (~311 meters).
- **Statement 3 is correct:** Because Taal sits inside a lake (Lake Taal) and contains a crater lake itself, its eruptions often involve magma interacting directly with water, leading to highly explosive phreatomagmatic (hydrovolcanic) eruptions that generate dangerous base surges and ash falls.

9. Consider the following statements regarding the global geographic distribution of volcanoes:

1. The Pacific Ring of Fire contains the highest concentration of active subaerial volcanoes globally, directly affecting littoral nations like Japan, the Philippines, Chile, and the USA.
2. The Mid-Atlantic Ridge is characterized by explosive volcanism fueled by the subduction of the South American plate beneath the African plate.
3. Iceland experiences vigorous volcanic activity because it is situated directly over a divergent plate boundary where the North American and Eurasian plates rift apart.

Which of the statements given above are correct?

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

Correct Answer: (b)

Explanation:

- **Statement 1 is correct:** The Pacific Ring of Fire is an extensive, horseshoe-shaped seismically active belt driven by subduction zones. It accounts for roughly 75% of the world's active and dormant volcanoes.
- **Statement 2 is incorrect:** The Mid-Atlantic Ridge is a divergent plate boundary where plates pull away from each other, not a subduction zone. Its volcanism is typically effusive and non-explosive, generating new basaltic oceanic crust.
- **Statement 3 is correct:** Iceland is a unique geological hotspot located directly atop the subaerial portion of the Mid-Atlantic Ridge. The rifting between the North American plate moving west and the Eurasian plate moving east creates a major crustal expansion zone filled by rising mantle magma.

10. Consider the following statements regarding regional tectonic volcanic zones:

1. The East African Rift represents a major continental divergence zone where active volcanoes like Mount Kilimanjaro and Mount Kenya are located.
2. The volcanic arc of the Andes Mountains is created by the subduction of the Nazca Plate beneath the overriding South American Plate.
3. The high density of active volcanoes in the Indonesian Archipelago is primarily driven by the shallow transform faulting between the Indian-Australian and Pacific plates.
4. The Aleutian volcanic arc in Alaska belongs directly to the Mid-Atlantic Ridge tectonic system, formed via the rifting of the Arctic crust.

Which of the statements given above are correct?

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

(d) 1 and 4 only

Correct Answer: (a)

Explanation::

- **Statement 1 is correct:** The East African Rift is an active continental rift valley system where the African Plate is splitting into the Somali and Nubian sub-plates. This extension allows magma to breach the continental crust, forming massive isolated volcanic peaks like Kilimanjaro and Mount Kenya.
- **Statement 2 is correct:** The Western margin of South America is a classic convergent boundary. The oceanic Nazca Plate subducts beneath the continental South American Plate, melting the lower crust and fueling the extensive volcanic chain of the Andes.
- **Statement 3 is incorrect:** Indonesia's high volcanic density is driven by subduction zones (convergent boundaries) where the Indo-Australian plate subducts beneath the Sunda/Eurasian plate, not by transform (horizontal sliding) faulting.
- **Statement 4 is incorrect:** The Aleutian volcanic arc in Alaska is located in the northern Pacific Ocean and forms a segment of the Pacific Ring of Fire, not the Mid-Atlantic Ridge. It is formed by the subduction of the Pacific Plate under the North American Plate.

Major Lakes

1. Consider the following statements:

1. Lake Baikal, situated in Siberia, is historically and structurally documented as both the deepest and the largest freshwater lake by liquid volume on Earth.
2. Lake Tanganyika is geographically classified as the absolute longest lake in the world, while holding the second-largest volume globally.
3. Lake Tanganyika ranks as the third deepest lake system globally, sitting directly behind Lake Superior.

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:

- **Statement 1 is correct:** Lake Baikal contains approximately 23,600 cubic kilometers of fresh water, which equates to roughly 20% of the world's surface unfrozen freshwater, making it the largest by volume. It is also the deepest at 1,637 meters.
- **Statement 2 is correct:** Lake Tanganyika is the longest lake globally, stretching approximately 660 kilometers through East Africa. It also ranks second globally in freshwater volume.
- **Statement 3 is incorrect:** Lake Tanganyika is the second deepest lake on Earth (~1,470 meters), sitting directly behind Lake Baikal. Lake Superior is much shallower (~406 meters).

2. Consider the following statements:

1. The absolute highest waterbody on Earth, irrespective of surface area footprint, is the crater lake of the Ojos del Salado volcano in the Andes.
2. Pumoyong Tso, located within the Tibet Autonomous Region of China, is recognized as the highest massive large-scale lake globally.

3. Lake Titicaca, straddling the border of Peru and Bolivia, is classified as the world's highest commercially navigable lake.
4. Dead Sea represents the lowest continental land elevation and functions as the lowest brackish lake system on Earth.

Which of the statements given above are correct?

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

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** Ojos del Salado hosts a small permanent volcanic crater lake at 6,390 meters above sea level, making it the highest water body on Earth.
- **Statement 2 is correct:** Pumoyong Tso sits at an extreme elevation of 5,018 meters above sea level in Tibet, qualifying it as the highest among the world's large-scale lakes.
- **Statement 3 is correct:** Lake Titicaca sits at 3,812 meters elevation. It handles major commercial vessel navigation and stands as the largest freshwater lake in South America by volume.
- **Statement 4 is incorrect:** While the Dead Sea is the lowest lake on Earth (~418 meters below sea level), it is a hyper-saline terminal salt lake.

3. Which of the following statements with regard to continental lake maximums is/are correct?

1. Lake Eyre, an endorheic terminal salt pan system, constitutes the largest lake by surface area within the Australian continent.
2. Lake Victoria is the largest lake in Africa and is classified as the second largest freshwater lake by surface area.

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)

Explanation:

- **Statement 1 is correct:** Lake Eyre (Kati Thanda-Lake Eyre) is located in hyper-arid South Australia. It is a massive ephemeral salt lake that marks the lowest point of Australia when dry and its largest lake basin when flooded.
- **Statement 2 is incorrect:** Lake Victoria is indeed the largest lake in Africa, but globally it is the third-largest freshwater lake by surface area, sitting behind Lake Superior and Lake Huron.

4. Which of the following statements with regard to regional continental lakes is/are correct?

1. Lake Ladoga and Lake Onega, both situated in northwestern Russia, represent the largest and second-largest lakes by surface area inside Europe.
2. Lake Maracaibo is recognized as the largest landlocked freshwater lake in South America.

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)

Explanation:

- **Statement 1 is correct:** Lake Ladoga (~17,700 sq km) is the largest lake in Europe, followed closely by Lake Onega (~9,700 sq km). Both are freshwater glacial lakes situated in northwestern Russia.
- **Statement 2 is incorrect:** Lake Maracaibo in Venezuela is much larger by area, but it is not landlocked or purely fresh; it is a tidal bay/estuary connected directly to the Caribbean Sea by a narrow strait, making it brackish. Therefore, Lake Titicaca remains the largest true inland lake in South America.

5. Consider the following statements regarding the North American Great Lakes:

1. The geographical sequencing of the Great Lakes arranged from west to east is Superior, Michigan, Huron, Erie, and Ontario.
2. The volumetric and surface area sorting of these lakes from largest to smallest is Superior, Huron, Michigan, Erie, and Ontario.
3. Lake Superior holds the geographic record as the largest continuous freshwater lake by surface area in the world.
4. Lake Huron holds the record as the largest lake located within the sovereign geographic borders of a single nation.

Which of the statements given above are correct?

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

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** Mapped spatially from West to East, the sequential line-up is exactly Superior → Michigan → Huron → Erie → Ontario.
- **Statement 2 is correct:** Measured by total surface area size, the downward hierarchy runs exactly Superior → Huron → Michigan → Erie → Ontario.
- **Statement 3 is correct:** Lake Superior (~82,100 sq km) is the largest freshwater lake on Earth by surface area (excluding the brackish/saline Caspian Sea).
- **Statement 4 is incorrect:** Lake Michigan is the only one of the five Great Lakes that lies entirely inside the United States. Lake Huron is shared across the international border with Canada.

6. Consider the following statements regarding the Dead Sea:

1. The Dead Sea is an endorheic hypersaline lake that directly borders Jordan to its east, and Israel and Palestine to its west.
2. The lake's surface and shoreline mark the absolute lowest hyper-saline terrestrial elevation point on Earth.
3. The high density of the Dead Sea is maintained because it is fed by multiple major transboundary rivers flowing out of Egypt.

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:

- **Statement 1 is correct:** The Dead Sea sits in the Jordan Rift Valley. Its eastern shores belong to Jordan, while its western half is shared between Israel and the West Bank (Palestine).
- **Statement 2 is correct:** The shorelines of the Dead Sea sit at more than 400 meters below sea level, making it the lowest dry land spot on the planet.
- **Statement 3 is incorrect:** The Dead Sea is primarily fed by the Jordan River, which flows from the north through Lebanon, Syria, Israel, and Jordan. It has no hydrological connection to Egypt or Egyptian river systems.

7. Which of the following statements with regard to the African Great Lakes is/are correct?

1. They represent a series of tectonic lakes formed within the structural depression zones of the East African Rift.
2. Unlike the deep rift valleys of Lake Malawi and Lake Tanganyika, Lake Victoria is a shallow basin that did not form inside a rift valley.

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: (c)

Explanation:

- **Statement 1 is correct:** The African Great Lakes are a collection of massive lakes clustered around the East African Rift, where the African tectonic plate is actively splitting apart.
- **Statement 2 is correct:** While Lake Tanganyika and Lake Malawi are classic deep, narrow trench lakes (grabens) formed directly inside rift faults, Lake Victoria is a broad, shallow structural depression located on the plateau *between* the eastern and western branches of the rift system.

8. Excluding the Caspian Sea from global lake classifications, consider the following statements regarding surface area rankings:

1. Lake Superior in North America holds the global rank as the largest surface area freshwater body.
2. Lake Victoria in Africa ranks immediately ahead of Lake Huron in the global surface area sequence.
3. Lake Michigan is ranked as the second-largest lake by surface area in the Western Hemisphere.

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

Correct Answer: (b)

Explanation:

- **Statement 1 is correct:** With the Caspian Sea excluded, Lake Superior is the undisputed largest freshwater lake by surface area globally (~82,100 sq km).
- **Statement 2 is correct:** In the global surface area rankings, Lake Victoria (~68,870 sq km) occupies the 2nd position, ranking just ahead of Lake Huron (~59,600 sq km), which sits at 3rd.

- **Statement 3 is incorrect:** Within the Western Hemisphere (North and South America), **Lake Huron** is the second largest by surface area, while Lake Michigan is the third largest.

9. Consider the following statements regarding the volumetric capacity of global freshwater lakes:

1. Lake Baikal contains more fresh water than all five North American Laurentian Great Lakes combined.
2. The downward global sequence of freshwater lakes by total liquid volume is Lake Baikal, followed by Lake Tanganyika, and then Lake Superior.
3. Due to intense subglacial freezing, Lake Vostok in Antarctica holds a smaller volume of liquid water than Lake Ontario in North America.

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:** Lake Baikal's immense depth allows it to hold 23,600 cubic kilometers of water, which exceeds the combined volume of all five Great Lakes (~22,684 cubic kilometers).
- **Statement 2 is correct:** The global volume leaderboard for freshwater lakes is topped by Lake Baikal (1st), followed by Lake Tanganyika (2nd), and Lake Superior (3rd).
- **Statement 3 is incorrect:** Even though it is sealed beneath 4 kilometers of ice, Lake Vostok is a massive subglacial lake containing roughly 5,400 cubic kilometers of liquid fresh water, making it significantly larger by volume than Lake Ontario (~1,640 cubic kilometers).

10. Which of the following statements with regard to the deepest lakes in the world is/are correct?

1. Lake Baikal and Lake Tanganyika occupy the top two positions on the global checklist of maximum lake depths.
2. Both of these deepest lakes are ancient geological rift valleys that contain deep accumulations of bottom sediment layers.

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: (c)

Explanation:

- **Statement 1 is correct:** Lake Baikal reaches a maximum depth of 1,637 meters (the deepest), and Lake Tanganyika drops to 1,470 meters (the second deepest). No other lake on Earth exceeds 1,000 meters in depth except these two and the Caspian Sea.
- **Statement 2 is correct:** Both Baikal and Tanganyika are long-lived rift valley lakes (grabens). Because they have existed for millions of years within active tectonic rifts, their floors have accumulated massive, kilometers-thick layers of runoff sediment that are highly valued for paleoclimate research.

Major Peninsulas of the World

1. Which of the following statements with regard to the Indian Deccan Peninsula is/are correct?

1. Bordered by the Arabian Sea to the west and the Bay of Bengal to the east, it is the largest peninsula in the world by landmass.
2. Spanning across exactly eight Indian states, its topography is structurally framed by the Eastern and Western Ghats.
3. The peninsula hosts highly biodiverse tiger reserves governed by the NTCA, a statutory body under the Ministry of Environment, Forest and Climate Change.

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)

Explanation:

- **Statement 1 is incorrect:** The Indian Peninsula is the second-largest peninsula in the world. The Arabian Peninsula holds the rank of the absolute largest.
- **Statement 2 is correct:** The peninsular plateau covers parts of eight major central and southern Indian states, and its edges are defined structurally by the Western and Eastern Ghats mountain ranges.
- **Statement 3 is correct:** The NTCA acts as the nodal statutory agency (constituted under the Wildlife Protection Act, 1972) overseeing tiger conservation across this biodiversity-rich landscape.

2. Which of the following statements with regard to the Horn of Africa is/are correct?

1. Also known as the Somali Peninsula, its political geography exclusively comprises only three sovereign nations: Djibouti, Ethiopia, and Somalia.
2. It is bound by the Gulf of Aden to its north and extends eastward into the Arabian Sea and the open Indian Ocean.

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 Horn of Africa comprises four sovereign nations, often remembered by the acronym SEED: Somalia, Ethiopia, Eritrea, and Djibouti.
- **Statement 2 is correct:** The massive protrusion of land acts as a geographical divide between the Gulf of Aden (connecting to the Red Sea) to its north and the broader Indian Ocean/Arabian Sea to its east and south.

3. Which of the following statements with regard to the Alaska Peninsula is/are correct?

1. It physically separates the open Pacific Ocean to the south from Bristol Bay, which acts as an arm of the Bering Sea.

2. The peninsula is characterized by the Aleutian Range, a dormant mountain system completely devoid of active volcanism.
3. The ecosystem falls under federal protection, hosting numerous national wildlife refuges administered by the United States Fish and Wildlife Service.

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 peninsula projects 497 miles to the southwest, serving as a distinct maritime boundary between the Pacific Ocean and the Bering Sea's Bristol Bay.
- **Statement 2 is incorrect:** The Aleutian Range is a highly active volcanic mountain range situated along the Pacific Ring of Fire, not a dormant system.
- **Statement 3 is correct:** The region is heavily conserved, featuring multiple protected wildlife refuges managed by federal nodal agencies like the US Fish and Wildlife Service to protect its dense brown bear and salmon populations.

4. Which of the following statements with regard to the Labrador Peninsula is/are correct?

1. Situated in Eastern Canada, its maritime boundaries include the Hudson Bay to the west and the Gulf of Saint Lawrence to its southeast.
2. The peninsula is administered by a single Canadian province, Quebec.
3. Because it is geographically situated atop the ancient Canadian Shield, the peninsula features a dense network of post-glacial lakes.

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 peninsula is surrounded by massive water bodies: Hudson Bay (west), Hudson Strait (north), Labrador Sea (east), and the Gulf of St. Lawrence (southeast).
- **Statement 2 is incorrect:** The Labrador Peninsula is divided between two provincial jurisdictions: the province of Quebec and the province of Newfoundland and Labrador.
- **Statement 3 is correct:** The Canadian Shield is composed of hard, Precambrian igneous rock. Glacial scouring during the last Ice Age created millions of depressions that are now filled with lakes.

5. Which of the following statements with regard to the Scandinavian Peninsula is/are correct?

1. Representing one of the largest peninsulas in Europe, its geographic landmass encompasses Sweden, Norway, and the entirety of Denmark.
2. More than a quarter of the peninsula's territory lies north of the Arctic Circle, featuring tundra climates bordered by the Barents Sea.

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:** While Denmark belongs to the *cultural* region of Scandinavia, it geographically occupies the Jutland Peninsula, not the Scandinavian Peninsula (which physically comprises Norway, Sweden, and northwestern Finland).
- **Statement 2 is correct:** The northern extremity of the peninsula stretches deeply into the Arctic Circle, abutting the Barents Sea, transitioning from subarctic forests to harsh tundra.

6. Which of the following statements with regard to the Balkan Peninsula is/are correct?

1. It is bordered by the Adriatic and Ionian Seas to its west, and the Black Sea to its east and northeast.
2. Due to structural geography, the peninsula features a strictly demarcated and universally recognized northern border formed by the Alps.
3. The peninsula comprises fragmented political territories, encompassing nations such as Greece, Bulgaria, and the European segment of Turkey.

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 Balkan Peninsula is defined by distinct maritime boundaries on three sides: Adriatic/Ionian (west/southwest), Aegean (south), and Black Sea (east).
- **Statement 2 is incorrect:** Unlike the Iberian or Italian peninsulas, the Balkan Peninsula lacks a well-defined northern geographical boundary (historically, geographers use river lines like the Danube or Sava rather than a mountain range).
- **Statement 3 is correct:** The region covers 181,000 square miles and includes multiple sovereign states like Albania, Croatia, Greece, Romania, Serbia, and the East Thrace region of North Turkey.

7. Which of the following statements with regard to the Iberian Peninsula is/are correct?

1. Spanning 225,000 square miles, it ranks as the absolute largest European peninsula by geographical expanse.
2. The political sovereignty of the peninsula is exclusively restricted to two sovereign nations: Spain and Portugal.
3. It is separated from the northwestern African coast by the narrow Strait of Gibraltar and the Mediterranean Sea.

Select the answer using the code given below:

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

Correct Answer: (b)

Explanation:

- **Statement 1 is incorrect:** It is the second-largest European peninsula; the Scandinavian Peninsula is the largest.
- **Statement 2 is incorrect:** While dominated by Spain and Portugal, the landmass also includes the sovereign microstate of Andorra, a small portion of southern France, and the British Overseas Territory of Gibraltar.
- **Statement 3 is correct:** The Strait of Gibraltar acts as the critical geographic choke point separating the southern tip of the Iberian Peninsula from Morocco (Africa).

8. Which of the following statements regarding the Kamchatka Peninsula are correct?

1. It is situated in the Russian Far East and functions as a physical barrier separating the Bering Sea from the Sea of Japan.
2. The region features the highly active 'Volcanoes of Kamchatka,' which are formally recognized as a World Heritage Site by UNESCO.
3. The peninsula experiences a strictly arid, desert climate characterized by exceptionally hot summers.
4. Administratively, the peninsula and its adjacent islands constitute the Kamchatka Krai within the Russian Federation.

Select the 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

Correct Answer: (b)

Explanation:

- **Statement 1 is incorrect:** The Kamchatka Peninsula separates the Sea of Okhotsk (on its west) from the open Pacific Ocean (on its east).
- **Statement 2 is correct:** The UNESCO-designated "Volcanoes of Kamchatka" contain some of the highest concentrations of active stratovolcanoes on the Pacific Ring of Fire.
- **Statement 3 is incorrect:** Kamchatka does not have an arid climate. It experiences moderately cool summers and notoriously severe, stormy, snow-heavy winters.
- **Statement 4 is correct:** Geopolitically, the Kamchatka Peninsula, Commander Islands, and Karaginsky Island are bundled into a single federal subject known as Kamchatka Krai.

9. Which of the following statements with regard to the Baja California Peninsula is/are correct?

1. Located in Northwestern Mexico, it serves as a geographic divider between the open Pacific Ocean and the Gulf of Mexico.
2. The landmass extends for 1,247 km continuously southward, terminating at Cabo San Lucas in the state of Baja California Sur.

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 peninsula separates the Pacific Ocean from the Gulf of California (Sea of Cortez), not the Gulf of Mexico (which is located on Mexico's eastern Atlantic coastline).
- **Statement 2 is correct:** The peninsula stretches roughly 1,247 kilometers from the northern border city of Mexicali all the way down to the tourist hub of Cabo San Lucas at its southern tip.

10. Which of the following statements regarding major global peninsulas are correct?

1. The Italian Peninsula, structurally known as the Apennine Peninsula, extends southward from the Alps directly into the central Mediterranean Sea.
2. The Sinai Peninsula serves as a strategic transcontinental desert land bridge, representing the only portion of Egypt's territory located in Asia.
3. The Crimean Peninsula extends into the northern coast of the Black Sea and connects to the Eastern European mainland solely through the narrow Perekop Isthmus.
4. The Kola Peninsula is located in the extreme southeast of Russia, protruding directly into the warm waters of the Black Sea.

Select the answer using the code given below:

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

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** The Italian Peninsula forms the distinctive boot shape of Italy, framed by the Apennine Mountains extending from the Alps to the Mediterranean.
- **Statement 2 is correct:** Sinai is a harsh desert peninsula bounded by the Mediterranean Sea (North) and Red Sea (South). It geographically links Africa to Asia and serves as Egypt's sole Asian landmass.
- **Statement 3 is correct:** Crimea is an essentially isolated landmass flanked by the Black Sea and Sea of Azov, relying on the 5-mile-wide Perekop Isthmus to connect to mainland Ukraine.
- **Statement 4 is incorrect:** The Kola Peninsula is located in the extreme northwest of Russia, projecting into the freezing waters of the Barents and White Seas (Arctic region), not the Black Sea.

Miscellaneous Continents of the World

1. Which of the following statements with regard to the Arctic Council and India's polar infrastructure is/are correct?

1. The Arctic Council is a high-level intergovernmental forum established under the Ottawa Declaration of 1996.
2. The sovereign voting membership of the Council consists exclusively of all eight nations that encircle the Arctic region.
3. India's permanent polar research laboratory, Himadri, is situated in the Svalbard archipelago under the nodal funding of the Ministry of External 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)

Explanation:

- **Statement 1 is correct:** The Arctic Council was formally established via the Ottawa Declaration in 1996 to provide a forum for cooperation among Arctic states and indigenous communities.
- **Statement 2 is correct:** Only the eight Arctic states (Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden, and the United States) hold sovereign voting membership. Other nations, like India, hold "Observer" status.
- **Statement 3 is incorrect:** While India's research base *Himadri* is indeed located at Ny-Ålesund in Svalbard, Norway, India's polar research program is managed and funded by the National Centre for Polar and Ocean Research (NCPOR) under the Ministry of Earth Sciences (MoES).

2. Which of the following statements with regard to the marginal seas of the Arctic Ocean is/are correct?

1. The Chukchi Sea is hydro-geographically linked to the Bering Sea and the open Pacific Ocean via the narrow corridor of the Bering Strait.
2. The Laptev Sea is landlocked, separating the East Siberian Sea from the internal Kara Sea.

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:** At its southernmost end, the Chukchi Sea meets the Bering Strait, which serves as the narrow choke point separating the Russian Far East from Alaska and connecting the Arctic and Pacific oceanic systems.
- **Statement 2 is incorrect:** The Laptev Sea is surrounded on three sides by land (the Siberian coast and northern archipelagos), leaving its northern flank completely open to the main Arctic Ocean basin.

3. Which of the following statements with regard to the Antarctic continent is/are correct?

1. It stands as the coldest, driest, and windiest continent, holding approximately 90% of the world's ice reserves.
2. The Onyx River functions as the longest sub-glacial river system on the continent, emptying directly into the landlocked Lake Vostok.
3. Astrobiological research conducted in Lake Vostok aims to understand environmental models applicable to Jupiter's icy moon, Europa.

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:** Antarctica is classified as a polar desert. It contains roughly 90% of the Earth's surface ice sheets and nearly 70% of the planet's total fresh water.

- **Statement 2 is incorrect:** The Onyx River is a meltwater stream that flows through the Wright Valley and empties into Lake Vanda, a hypersaline ice-covered lake on the surface, not the deep sub-glacial Lake Vostok.
- **Statement 3 is correct:** Lake Vostok is a massive lake trapped under 4 kilometers of ice. Scientists study it as an analog for sub-surface liquid oceans beneath the ice crusts of planetary bodies like Jupiter's moon Europa.

4. Consider the following statements regarding Antarctica and India's strategic research stations:

1. The Transantarctic Mountain range structurally bisects the continent into two halves: Greater Antarctica and Lesser Antarctica.
2. Mount Erebus, situated within this ecosystem, holds the record as the southernmost active magmatic volcano on Earth.
3. India's operational research bases Maitri and Bharati are managed by the ISRO under the Department of Space.

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 Transantarctic Mountains stretch across the continent, dividing it into the geologically distinct East (Greater) and West (Lesser) ice sheets.
- **Statement 2 is correct:** Located on Ross Island, Mount Erebus is an active stratovolcano featuring a persistent lava lake, making it the southernmost active volcano on Earth.
- **Statement 3 is incorrect:** India's polar stations (Maitri and Bharati, following the decommissioning of Dakshin Gangotri) are under the institutional control of the National Centre for Polar and Ocean Research (NCPOR), which operates under the Ministry of Earth Sciences.

5. Which of the following statements with regard to the political geography of North America is/are correct?

1. The 49th Parallel acts as the straight international land boundary separating the mainland United States from Canada.
2. The Arctic Circle passes through the sovereign territories of the United States (Alaska), Canada, and Iceland.

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 49th parallel north forms the long, straight international boundary stretching from the Lake of the Woods to the Strait of Georgia between Canada and the USA.

- **Statement 2 is incorrect:** The Arctic Circle crosses USA (Alaska), Canada, and Greenland (which is a territory of Denmark). It passes just north of mainland Iceland, crossing only its tiny offshore island of Grímsey.

6. Which of the following statements with regard to the San Andreas Fault is/are correct?

1. It is structurally classified as a continental transform fault line that extends approximately 1,200 kilometers through California.
2. The fault delineates the active right-lateral strike-slip tectonic boundary between the Pacific Plate and the North American Plate.
3. Vertically, the fault line terminates at its southernmost end within the waters of Hudson Bay.

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 San Andreas Fault is a classic, visible example of a continental transform fault stretching across California.
- **Statement 2 is correct:** The fault marks the boundary where the Pacific Plate is sliding horizontally past the North American Plate in a right-lateral strike-slip motion.
- **Statement 3 is incorrect:** The San Andreas Fault runs south and terminates in the Gulf of California (Sea of Cortez), which is located thousands of miles away in northeastern Canada.

7. Which of the following statements with regard to North American river systems is/are correct?

1. The Yukon River flows through Canada and Alaska, gaining historical economic importance due to the discovery of placer gold deposits along its basin.
2. The Mackenzie River drains northward into the Beaufort Sea and is the longest river system flowing into the Arctic Ocean from the North American continent.

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 Yukon River was the focal point of the famous Klondike Gold Rush due to rich placer gold deposits found in its tributaries.
- **Statement 2 is correct:** The Mackenzie River forms the largest river network in Canada and stands as the largest North American river system that empties its discharge into the Arctic Ocean via the Beaufort Sea.

8. Consider the following statements regarding the St. Lawrence and Mississippi river networks:

1. The St. Lawrence River flows out of Lake Ontario, forming a segment of the international boundary between the United States and Canada.

2. The Mississippi River is the largest drainage system on the North American continent, outranking the catchment basin of Hudson Bay.
3. The Mississippi River terminates in the Gulf of Mexico by building a classic, bird-foot shaped depositional delta.

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:

- **Statement 1 is correct:** The St. Lawrence River acts as a natural maritime boundary separating New York State (USA) from Ontario (Canada) as it flows northeast toward the Atlantic.
- **Statement 2 is incorrect:** The Mississippi River drainage basin is the second-largest on the continent, sitting behind the massive Hudson Bay drainage basin in total area.
- **Statement 3 is correct:** The Mississippi River carries high mud loads into the calm waters of the Gulf of Mexico, forming a elongated bird-foot delta along its distributaries.

9. Which of the following statements with regard to western North American river boundaries is/are correct?

1. The Colorado River carves through the Colorado Plateau to form the Grand Canyon before emptying into Lake Mead along the Arizona-Nevada border.
2. The Rio Grande serves as a fixed, unshifting international boundary between the United States and Mexico, free from bilateral territorial disputes.

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 Colorado River is the primary force that carved the Grand Canyon. It flows southwestward and fills the massive Hoover Dam reservoir (Lake Mead) on the Nevada-Arizona line.
- **Statement 2 is incorrect:** The Rio Grande is notorious for shifting its river channel due to natural avulsion and flooding. These shifts historically caused frequent boundary disputes between the US and Mexico (such as the Chamizal dispute).

10. Which of the following statements regarding the North American Great Lakes are correct?

1. Lake Superior is geologically classified as the largest single freshwater lake by surface area in the world.
2. The international boundary line between Canada and the United States divides all five Great Lakes into equal sovereign shares.
3. Lake Michigan holds the geographical distinction of being the only Great Lake situated entirely within the borders of the United States.
4. The Great Lakes Waterway bypasses structural bottlenecks to connect these inland basins directly to the Atlantic Ocean via the Amazon basin.

Select the 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

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** Excluding the saline/brackish Caspian Sea, Lake Superior holds the record as the world's largest freshwater lake by surface area (~82,100 sq km).
- **Statement 2 is incorrect:** Four of the lakes are shared between the US and Canada, but they are not split into equal geographic halves.
- **Statement 3 is correct:** Lake Michigan lies entirely inside the territory of the United States, whereas Lakes Superior, Huron, Erie, and Ontario are shared across the international border with Canada.
- **Statement 4 is incorrect:** The Great Lakes connect to the Atlantic Ocean via the Saint Lawrence Seaway.

Continents of the World (North America & South America)

1. Which of the following statements regarding the physical features of North America are correct?

1. Denali, located in the Alaska Range, is the highest mountain peak in both the United States and the continent of North America.
2. The Canadian Shield consists of ancient Precambrian bedrock whose topography has been significantly reduced by prolonged erosion and weathering.
3. Mount Mitchell forms the highest elevation point within the Western Cordilleras system.
4. The Great Plains represent tropical savanna ecosystems extending along the Atlantic coast.

Select the answer using the code given below:

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

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** Denali (formerly Mt. McKinley), rising to 6,190 meters in the Alaska Range, is the highest peak in North America.
- **Statement 2 is correct:** The Canadian Shield is a vast area of exposed Precambrian crystalline rock (remnants of ancient continental crust) that has been eroded and scoured by successive glaciations.
- **Statement 3 is incorrect:** Mount Mitchell (2,037 m) is the highest peak of the Appalachian Mountains in eastern North America.
- **Statement 4 is incorrect:** The Great Plains consist of temperate grasslands (known locally as Prairies).

2. Which of the following statements with regard to North American physical geography is/are correct?

1. The Isthmus of Tehuantepec in Mexico represents the shortest overland distance between the Gulf of Mexico and the Pacific Ocean.
2. Newfoundland Island is located along the Pacific coast of Canada and is famous for its desert ecology.

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 Isthmus of Tehuantepec is a narrow land bridge in southern Mexico measuring roughly 200 km across, serving as the shortest route between the Gulf of Mexico and the Pacific Ocean.
- **Statement 2 is incorrect:** Newfoundland is an island situated off the eastern (Atlantic) coast of Canada. It is renowned for its rich Grand Banks fishing grounds (where warm Gulf Stream and cold Labrador currents meet).

3. Which of the following statements with regard to the political and physical geography of South America is/are correct?

1. The Equator passes through three South American nations: Ecuador, Colombia, and Brazil.
2. The Tropic of Capricorn crosses Chile, Argentina, Paraguay, and Brazil.
3. All sovereign nations in South America possess direct maritime coastlines along either the Pacific or Atlantic Oceans.

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:** Moving west to east, the Equator (0° latitude) cuts through Ecuador, Colombia, and Brazil.
- **Statement 2 is correct:** Moving west to east, the Tropic of Capricorn (23.5° S latitude) passes through Chile, Argentina, Paraguay, and Brazil.
- **Statement 3 is incorrect:** South America has two completely landlocked nations lacking direct sea access: Bolivia and Paraguay.

4. Which of the following statements with regard to French Guiana is/are correct?

1. French Guiana is an overseas department of France that hosts the primary spaceport of the European Space Agency (ESA) at Kourou.
2. Launching geosynchronous satellites from this territory requires significantly higher fuel usage because the Earth's Coriolis force reaches its maximum intensity at this latitude.

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:** French Guiana is an integral territory of France. Its Guiana Space Centre at Kourou serves as Europe's main spaceport for launching Ariane rockets.
- **Statement 2 is incorrect:** Proximity to the Equator ($\sim 5^\circ \text{N}$) provides a maximal rotational speed boost ($1,670 \text{ km/h}$) to launches heading east, saving fuel rather than consuming more. Furthermore, the Coriolis force is zero at the Equator.

5. Which of the following statements with regard to the geography and economic centers of Brazil is/are correct?

1. Brazil shares a common land border with every single sovereign nation on the South American continent.
2. The urban region formed by Rio de Janeiro, Santos, and Sao Paulo is traditionally termed the Coffee Triangle and is vital to Brazil's agricultural export economy.

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:** Brazil borders ten South American entities, but it does not share land borders with Chile or Ecuador (as well as the island nation of Trinidad and Tobago in the Caribbean).
- **Statement 2 is correct:** The Rio de Janeiro–Santos–São Paulo zone forms Brazil's economic heartland, handling processing, meat packaging, and coffee exports via the port of Santos.

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

1. The agricultural zone encompassing Buenos Aires, Mendoza, and Rosario is historically known as the Wheat Triangle.
2. The Strait of Magellan remains the primary commercial maritime trade route for international container ships traveling between the Atlantic and Pacific Oceans today.

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 fertile Pampas region spanning Buenos Aires, Mendoza, and Rosario forms Argentina's core commercial wheat production triangle.
- **Statement 2 is incorrect:** Commercial usage of the hazardous Strait of Magellan dropped dramatically following the opening of the Panama Canal in 1914, which provided a far shorter and safer passage between the oceans.

7. Which of the following statements with regard to Chile is/are correct?

1. The city of Arica, situated in northern Chile within the Atacama Desert ecosystem, is documented as one of the driest inhabited places on Earth.
2. Valparaíso is Chile's primary industrial center for heavy iron ore smelting, situated in the hyper-arid Atacama region.

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:** Arica lies on the edge of the Atacama Desert and receives an average annual rainfall of less than 1 mm, earning its status as one of the driest places on Earth.
- **Statement 2 is incorrect:** Valparaíso is located in central Chile (Mediterranean climate zone) and is world-famous as a historic port city, cultural center, and wine-exporting hub.

8. Which of the following statements regarding the grasslands and ecosystems of South America are correct?

1. The Llanos of Venezuela and Colombia are classified as tropical savanna grasslands.
2. The Pampas of Argentina and Uruguay constitute temperate grassland ecosystems.
3. The Selva region of the Amazon basin is a cold alpine tundra environment.
4. The Gran Chaco represents a coastal mangrove swamp along the Pacific ocean.

Select the answer using the code given below:

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

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** The Llanos basin in the Orinoco river system is a classic tropical savanna grassland experiencing distinct wet and dry seasons.
- **Statement 2 is correct:** The Pampas are flat, fertile temperate grasslands ideal for intensive agriculture and cattle ranching.
- **Statement 3 is incorrect:** The Selvas refer to the dense, equatorial tropical rainforests of the Amazon Basin.
- **Statement 4 is incorrect:** The Gran Chaco is a hot, semi-arid lowland alluvial plain located in the interior of South America (Bolivia, Paraguay, Argentina).

9. Which of the following statements with regard to the plateaus and highlands of South America is/are correct?

1. Angel Falls, the world's highest uninterrupted waterfall, is located on the Gauja/Caroni River system within the Guiana Highlands of Venezuela.
2. Lake Titicaca, recognized as the world's highest commercially navigable lake, is situated on the Bolivian Plateau (Altiplano).
3. The Mato Grosso Plateau is a high-altitude glacial landform located entirely inside the borders of Chile.

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:** Angel Falls drops nearly 979 meters from a tabletop mountain (tepui) in the Guiana Highlands of southeastern Venezuela.
- **Statement 2 is correct:** Lake Titicaca sits at an elevation of 3,812 meters on the high Altiplano plateau shared between Bolivia and Peru.
- **Statement 3 is incorrect:** The Mato Grosso Plateau is an ancient plateau located in central Brazil (forming a drainage divide between the Amazon and Paraguay river basins).

10. Which of the following statements with regard to the Andes Mountain system is/are correct?

1. Mount Aconcagua, standing at over 6,900 meters, represents the highest peak in the Andes as well as the Western Hemisphere.
2. The Uspallata Pass serves as a historic mountain pass providing a transportation corridor across the Andes between Argentina and Chile.
3. The Andes are classified as ancient block mountains formed during the Precambrian era without active volcanism.

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:** Mount Aconcagua (6,961 m), located in Argentina near the Chilean border, is the highest peak in the Americas and the highest peak outside of Asia.
- **Statement 2 is correct:** The Uspallata Pass (also known as the Bermejo Pass) connects Mendoza in Argentina with Santiago/Valparaíso in Chile, serving as a primary trans-Andean route.
- **Statement 3 is incorrect:** The Andes are young fold mountains formed by the subduction of the oceanic Nazca Plate beneath the continental South American Plate. Consequently, the range features extensive active volcanism along the Pacific Ring of Fire.

Continents of the World (South America and Central America)

1. Which of the following statements with regard to South American river systems is/are correct?

1. The Amazon River carries the largest discharge volume of water globally, with its drainage basin extending across Peru, Colombia, and Brazil.
2. The Orinoco River is the fourth largest river in the world by discharge volume, flowing through Colombia and Venezuela.
3. Angel Falls, the world's highest waterfall, drops directly from the main stem of the Amazon River within eastern Peru.

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 Amazon River is the world's largest river by discharge volume (accounting for roughly 20% of global river flow). Its massive basin drains parts of Peru, Colombia, and Brazil, among other nations.
- **Statement 2 is correct:** The Orinoco River is one of the longest rivers in South America and ranks fourth globally by discharge volume, flowing through Colombia and Venezuela.
- **Statement 3 is incorrect:** Angel Falls is located on the Churun River (a tributary of the Caroní River, which feeds into the Orinoco River) in Venezuela, not on the Amazon River in Peru.

2. Which of the following statements with regard to Lake Titicaca is/are correct?

1. It is the largest freshwater lake in South America by both surface area and water volume.
2. Situated at an altitude of approximately 3,812 meters (12,507 ft), it is recognized as the world's highest commercially navigable lake, shared between Peru and Bolivia.

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:** Lake Titicaca holds the largest volume of fresh water and surface area among all lakes on the South American continent.
- **Statement 2 is correct:** Located on the high Andean Altiplano plateau at 12,507 feet above sea level, Lake Titicaca holds the international geographic title of the "highest navigable lake" in the world, with its western portion in Peru and eastern portion in Bolivia.

3. Which of the following statements with regard to the La Plata river network is/are correct?

1. Parana River ranks second in length only to the Amazon River in South America, merging downstream with the Uruguay River.
2. Uruguay River flows from south to north, serving as the primary international maritime boundary between Chile and Argentina.

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:** Running through Brazil, Paraguay, and Argentina, the Paraná River is South America's second-longest river. It joins the Paraguay River and later the Uruguay River to discharge into the Atlantic Ocean via the Río de la Plata.
- **Statement 2 is incorrect:** The Uruguay River flows from north to south (not south to north) and forms parts of the borders of Brazil, Argentina, and Uruguay. It does not border Chile (which lies west of the Andes).

4. Which of the following statements with regard to Lake Maracaibo is/are correct?

1. Lake Maracaibo is a large brackish tidal bay connected to the Gulf of Venezuela via the Tablazo Strait.
2. The basin surrounding Lake Maracaibo is devoid of mineral resources, functioning as an agricultural marine reserve.

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:** Located in the Zulia state of Venezuela, Lake Maracaibo acts as a brackish inlet of the Caribbean Sea, joined to the Gulf of Venezuela through the narrow Tablazo Strait.
- **Statement 2 is incorrect:** The Maracaibo Basin contains some of the largest crude oil reserves in the world, making it a primary economic engine and hydrocarbon production hub for Venezuela. (Additionally, it experiences the famous Catatumbo lightning phenomenon).

5. Which of the following statements with regard to island territories off South America is/are correct?

1. Falkland Islands represent a disputed archipelago in the South Atlantic Ocean, administered as a British Overseas Territory while claimed by Argentina.
2. The Galapagos Islands are a chain of volcanic islands located in the Pacific Ocean that are governed as an internal territory of Brazil.

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 Falkland Islands (Islas Malvinas) are self-governing British Overseas Territories in the South Atlantic, with defence and foreign affairs handled by the UK, though sovereignty remains contested by Argentina.
- **Statement 2 is incorrect:** The Galápagos Archipelago, famed for its hyper-endemic biodiversity, is an official province and territory of Ecuador, not Brazil.

6. Which of the following statements with regard to South American arid zones is/are correct?

1. Patagonian Desert is the largest desert by area in Argentina, bounded by the Andes to its west and the Atlantic Ocean to its east.

- Atacama Desert in Chile is recognized as the driest non-polar desert on Earth, functioning as a primary coastal fog desert.
- Sechura Desert is a hyper-arid coastal desert located along the Pacific coastline in southern Peru.

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 Patagonian Desert spans over 670,000 km² mainly in southern Argentina, formed in the rain shadow of the Andes mountains.
- Statement 2 is correct:** Atacama receives virtually no rainfall due to the rain-shadow effect of the Andes and the cold offshore Humboldt Current, making it the driest non-polar desert globally.
- Statement 3 is correct:** The Sechura Desert occupies a strip along the Pacific coast of northwestern/southern Peru south of the Piura Region.

7. Which of the following statements with regard to South American desert ecoregions is/are correct?

- Monte Desert is an arid South American ecoregion lying entirely within the sovereign territory of Argentina.
- La Guajira Desert is a coastal desert region situated in northern Colombia and parts of northwestern Venezuela.

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 Monte Desert lies wholly within Argentina, north of the Patagonian Desert and east of the Andes, sharing similar rain-shadow characteristics.
- Statement 2 is correct:** The La Guajira Desert occupies the La Guajira Peninsula at the northernmost tip of South America, split between northern Colombia and western Venezuela along the Caribbean Sea.

8. Which of the following statements with regard to the Lithium Triangle is/are correct?

- The Lithium Triangle encompasses the Andean salt flat regions spanning the borders of Argentina, Bolivia, and Chile.
- The region is estimated to hold over 50% of the world's total identified lithium brine reserves.
- The Indian Navy has prioritized securing lithium reserves in this region primarily to fuel coal-based thermal power stations across coastal 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: (c)

Explanation:

- **Statement 1 is correct:** The Lithium Triangle includes major salt pans such as Salar de Uyuni (Bolivia), Salar de Atacama (Chile), and Salar del Hombre Muerto (Argentina).
- **Statement 2 is correct:** Geographic estimates indicate that this concentrated tri-national area holds roughly 54% to 60% of known global lithium resources.

9. Which of the following statements with regard to Central American isthmus nations is/are correct?

1. El Salvador is the only country on the Central American isthmus that borders the Pacific Ocean exclusively, lacking a direct coastline on the Caribbean Sea.
2. Belize stands as the only Central American nation that possesses dual coastlines along both the Pacific Ocean and the Caribbean Sea.

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:** El Salvador is situated entirely on the western side of the isthmus, making it the only Central American state without a Caribbean Sea coastline.
- **Statement 2 is incorrect:** Belize lies exclusively on the eastern side bordering the Caribbean Sea (Atlantic Ocean) and has no Pacific coast. Nations like Guatemala, Honduras, Nicaragua, Costa Rica, and Panama border both oceans.

10. Which of the following statements with regard to Central and South American transport corridors is/are correct?

1. The Panama Canal relies on an artificial lock system Gatun Lake, reducing maritime travel distance between the US East and West coasts.
2. Darien Gap, characterized by dense swamp forests and mountainous terrain and forms the only major physical break in the continuous Pan-American Highway.

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 engineering design of the Panama Canal uses locks as water elevators to lift ships 85 feet to Gatun Lake level before lowering them. It cuts transit distance between New York and San Francisco from $\sim 22,500 \text{ km}$ (via Cape Horn) to $\sim 9,500 \text{ km}$.
- **Statement 2 is correct:** The Darién Gap is a 106-km unpaved swath of tropical rainforest and marshland across the Panama-Colombia border. It represents the single missing link in the otherwise

continuous **48,000-km** Pan-American Highway, halting overland motor vehicle transit between Central and South America.

Continents of the World (Australia)

1. Which of the following statements with regard to the continent of Australia is/are correct?

1. Australia is the only geographic entity in the world that constitutes both an entire continent and a single sovereign nation.
2. The Tropic of Capricorn cuts the Australian landmass roughly into two equal halves.
3. Mount Kosciuszko, the highest peak on the continent, is located within the Western Plateau region.

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:** Australia is unique as it is the world's smallest continent while being the only continent entirely occupied by a single sovereign state.
- **Statement 2 is correct:** The Tropic of Capricorn (**23.5° S** latitude) passes through the middle of the continent, bisecting it into tropical and temperate zones.
- **Statement 3 is incorrect:** Mount Kosciuszko (2,230 meters) is located in the Snowy Mountains within the Great Dividing Range (Eastern Highlands) of New South Wales, not in the Western Plateau.

2. Which of the following statements with regard to Australian hydrography and coastal sites is/are correct?

1. Murray River is Australia's longest river, flowing southwest to empty into the Southern Ocean.
2. Darling River originates in New South Wales and serves as the principal right-bank tributary of the Murray River.
3. Shark Bay, a UNESCO World Heritage Site known for its stromatolites, is located on the eastern coast of Queensland facing the Pacific Ocean.

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 Murray River stretches approximately 2,508 kilometers, making it the longest river system on the Australian continent.
- **Statement 2 is correct:** The Darling River is the third-longest river in Australia and joins the Murray River at Wentworth, New South Wales.

- **Statement 3 is incorrect:** Shark Bay is located at the westernmost point of Western Australia on the Indian Ocean. Located at the most westerly point of Western Australia, Shark Bay is a UNESCO World Heritage Site renowned for its exceptional marine biodiversity.

3. Which of the following statements with regard to the physiography of Australia is/are correct?

1. The Great Dividing Range is a complex cordillera of ancient plateaus, upland escarpments, and residual mountain chains rather than a single continuous ridge.
2. The Australian continent is characteristically devoid of active, young fold mountain belts formed during the Cenozoic alpine orogeny.
3. The Eastern Highlands constitute Australia's largest internal drainage division by geographical area.

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 Great Dividing Range (East Australian Cordillera) consists of a series of plateaus, hill chains, and escarpments with an ancient geological history.
- **Statement 2 is correct:** Unlike Asia or South America, Australia lacks young fold mountain systems because it is located centrally on its tectonic plate, far from active convergent plate boundaries.
- **Statement 3 is incorrect:** The Western Plateau (covering nearly 60% of the landmass) is Australia's largest drainage division, not the Eastern Highlands.

4. Which of the following statements with regard to Australian arid regions and marine systems is/are correct?

1. The Great Barrier Reef is the world's largest coral reef system, located off the northeastern coast of Queensland in the Coral Sea.
2. The Western Desert region is an alpine tundra landscape situated south of Tasmania.

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:** Stretching over 2,300 kilometers off Queensland's coast in the Pacific Ocean (Coral Sea), the Great Barrier Reef is the largest coral ecosystem on Earth.
- **Statement 2 is incorrect:** The Western Desert comprises vast arid and semi-arid sand-ridge environments (including the Great Sandy, Little Sandy, and Gibson Deserts) in Western Australia, not an alpine tundra south of Tasmania.

5. Which of the following statements with regard to the climatic divisions of Australia is/are correct?

1. The temperate southern coastal regions experience summer from December to February and winter from June to August.

2. Tropical northern regions experience distinct wet (monsoonal) and dry seasonal spells rather than four traditional temperate seasons.
3. The equatorial zone is restricted to the northernmost fringes, including the tip of Cape York and offshore islands near Darwin.

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:** Located in the Southern Hemisphere, Australia's seasons are inverted relative to the Northern Hemisphere. Summer runs from December through February, while winter spans June through August.
- **Statement 2 is correct:** Northern tropical Australia (including the Top End and Kimberley) operates under a tropical monsoonal climate characterized by a high-rainfall "wet season" and a rainless "dry season."
- **Statement 3 is correct:** True equatorial conditions in Australia are limited to extreme northern maritime points such as northern Cape York Peninsula, Melville Island, and Bathurst Island.

6. Which of the following statements with regard to the regional groupings of Oceania is/are correct?

1. Melanesia includes island nations situated north and east of Australia, such as Papua New Guinea, Fiji, and the Solomon Islands.
2. Micronesia is an agglomeration of small islands in the western Pacific, including Guam, Kiribati, and the Marshall Islands.
3. Polynesia forms a central triangular region whose geographic limits extend to New Zealand in the north and Midway Islands in the extreme south.

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:** Melanesia (black islands) comprises the island chain lying directly north and northeast of Australia, including Papua New Guinea, Solomon Islands, Vanuatu, New Caledonia, and Fiji.
- **Statement 2 is correct:** Micronesia (small islands) encompasses low-lying archipelagos north of the Equator, including Guam, Palau, Kiribati, and the Marshall Islands.
- **Statement 3 is incorrect:** The Polynesian triangle extends from Midway Islands in the north to New Zealand in the south (and Easter Island in the east).

7. Which of the following statements regarding Australia's structural and spatial geography are correct?

1. The Great Dividing Range stretches over 3,500 kilometers along the eastern coast from Cape York in Queensland down through New South Wales and Victoria.

2. The continental landmass of Asia lies northwest of the Australian continent across the Indonesian archipelago.
3. Singapore on the Asian mainland forms the closest continental proximity point to Australia.
4. The Great Dividing Range originated as a volcanic island arc during the late Holocene epoch.

Select the answer using the code given below:

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

Correct Answer: (a)

Explanation:

- **Statement 1 is correct:** The Great Dividing Range spans over 3,500 km, running parallel to the eastern coastline from northern Queensland to western Victoria.
- **Statement 2 is correct:** Asia lies to the northwest of Australia, separated by maritime channels and the Indonesian island chain.
- **Statement 3 is correct:** Singapore (at the tip of the Malay Peninsula) represents the nearest mainland Asian point relative to northern Australia.
- **Statement 4 is incorrect:** The Great Dividing Range is an ancient continental structural formation (Paleozoic origin), not a recent volcanic island arc formed during the Holocene epoch.

8. Which of the following statements with regard to the Western Plateau region is/are correct?

1. The Western Plateau is an ancient, highly eroded shield dominated by desert landforms and subterranean karst features.
2. High annual rainfall across the Western Plateau is driven by warm equatorial ocean currents flowing along the Western Australian coast.

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 Western Plateau consists of stable Precambrian crystalline rock that has undergone prolonged weathering, giving rise to interior deserts and underground karst/cave networks.
- **Statement 2 is incorrect:** The region is hyper-arid. Its dry climate is reinforced by the cold West Australian Current, which suppresses evaporation and cloud formation along the western coast.

9. Which of the following statements with regard to the Central Lowlands of Australia is/are correct?

1. The Central Lowlands form an extensive interior basin positioned between the Eastern Highlands and the Western Plateau.
2. The Great Artesian Basin lies beneath this region, containing pressurized groundwater aquifers that discharge naturally via artesian wells.
3. The groundwater extracted from the Great Artesian Basin is generally saline, rendering it more suitable for livestock watering than human drinking water.

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 Central Lowlands occupy the structural sag between the ancient Western Shield and the Eastern Highlands.
- **Statement 2 is correct:** The Great Artesian Basin is one of the world's largest underground freshwater resources, where confined groundwater is trapped under high hydrostatic pressure between impermeable clay layers.
- **Statement 3 is correct:** High concentrations of dissolved mineral salts (sodium bicarbonate and soluble salts) make artesian water brackish. It is primarily used for pastoral stock watering rather than direct human consumption.

10. Which of the following statements regarding Australian river basins and drainage systems are correct?

1. High evaporation rates and low average precipitation across Australia limit the formation of permanent ocean-bound river networks.
2. The Lake Eyre Basin represents a major endorheic (internal) drainage system covering over one million square kilometers.
3. The Murray River originates in the Western Desert and flows north directly into the Gulf of Carpentaria.
4. The principal tributaries of the Murray River system include the Murrumbidgee and Lachlan rivers.

Select the answer using the code given below:

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

Correct Answer: (b)

Explanation:

- **Statement 1 is correct:** Due to low overall rainfall and high potential evapotranspiration, much of Australia lacks perennial rivers reaching the sea.
- **Statement 2 is correct:** The Lake Eyre Basin is one of the largest endorheic drainage systems in the world (covering over 1.2 million km^2), draining interior rivers into Lake Eyre without an oceanic outlet.
- **Statement 3 is incorrect:** The Murray River originates in the Snowy Mountains (Great Dividing Range) in the east and flows southwest, not from the Western Desert to the Gulf of Carpentaria.
- **Statement 4 is correct:** The Murrumbidgee and Lachlan rivers are major right-bank components of the Murray-Darling river basin.