Q.1) Consider the following statements

1. P-waves are body waves whereas S-waves are surface waves
2. Surface waves are the most damaging waves
3. For each earthquake, there exists an similar shadow zone.
4. The shadow zone of S-wave is much larger than that of the P-waves

Which of the above statements is/are correct?

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

Q.1) Solution (a)

Explanation:

- P-waves are primary waves that travel through the body of the Earth and can travel through solid and liquid materials, while S-waves are secondary waves that travel only through solid materials. Both these waves are in interior of the earth and not on surface. Therefore, P-waves are body waves, and S-waves are also body waves, not surface waves.**Hence Statement 1 is incorrect**
- Surface waves, also known as Love and Rayleigh waves, are the most damaging waves because they travel along the surface of the Earth and cause the ground to shake more intensely, leading to greater damage to buildings and other structures. **Hence Statement 2 is correct**.
- For each earthquake, there is an associated shadow zone, which is a region on the Earth's surface where the seismic waves from that earthquake cannot be detected by seismographs due to the bending of the waves as they travel through the Earth's interior.However this differs for each wave depending upon the location and depth of an earthquake.**Hence Statement 3 is incorrect.**
- The shadow zone of S-waves is much larger than that of P-waves because S-waves cannot travel through the Earth's liquid outer core, which creates a larger shadow zone for S-waves. In contrast, P-waves can travel through both solid and liquid materials, so their shadow zone is smaller than that of S-waves. **Hence Statement 4 is correct**

Q.2) Consider the following statements.

1. The crust can be divided into Oceanic crust which is Sial and Continental crust which is known as Sima.
2. Core is primarily composed of iron and nickel an is thus know as Nife
3. Mantle is responsible for generating the Earth's magnetic field

Which of the above statements are correct?

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

Q.2) Solution (a)

Explanation:

- As continental crust is rich in silica and aluminum, it is referred to as sial. Oceanic crust is generally basaltic and is composed of rocks rich in silica and magnesium. As oceanic crust is rich in silica and magnesium, it is referred to as sima. **Hence Statement 1 is incorrect**
- The Earth's core is primarily composed of iron(Fe) and nickel,(Ni) with smaller amounts of other elements. The core is divided into two main layers: the outer core, which is liquid, and the inner core, which is solid. **Hence Statement 2 is correct**
- The Earth's magnetic field is generated by the movement of molten iron in the outer core, not by the mantle. The mantle is the layer of the Earth between the crust and the core, and although it plays an important role in the Earth's dynamics, it is not responsible for generating the magnetic field. **Hence Statement 1 is incorrect**

Q.3) Consider the following statements

1. Orogenesis results in the upward movement of the Earth's crust leading to creation of mountain ranges.
2. Folding results in the bending of rock layers due to compression
3. Faulting results in the breaking and displacement of rocks along a fracture

Which of the above statements are correct?

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

Q.3) Solution (b)

Explanation:

- Orogenesis refers to the process of mountain building, which occurs when large- scale tectonic forces cause the Earth's crust to buckle and fold, resulting in the formation of mountain ranges.
- There are several different types of orogeny, including collisional orogeny, where two tectonic plates converge and one is thrust up over the other, and volcanic orogeny, where volcanic activity builds up over time to form a mountain range. The process of orogenesis can be initiated by a variety of tectonic forces, including the collision of two continental plates, the subduction of an oceanic plate beneath a continental plate, or the movement of a tectonic plate over a hotspot, causing volcanic activity to build up over time. **Hence Statement 1 is correct**
- Folding is a type of deformation that occurs when rocks are subjected to compressional forces, causing them to bend and warp. Folding can result in the formation of large-scale structures such as anticlines and synclines. Anticlines are upwardly convex folds that resemble arches, while synclines are downwardly concave folds that resemble troughs. Folding is often associated with mountain-building processes. **Hence Statement 2 is correct**
- Faulting is a type of deformation that occurs when rocks break along a fault plane due to the movement of tectonic plates. Faults can be classified into several types, including normal faults, reverse faults, and strike-slip faults. Normal faults occur when rocks are pulled apart, resulting in the hanging wall moving downward relative to the footwall. Reverse faults occur when rocks are pushed together, resulting in the hanging wall moving upward relative to the footwall. Strike-slip faults occur when rocks slide past each other horizontally. **Hence Statement 3 is correct**

Q.4) Which of the following statements is true regarding exogenic earth movements and weathering?

a) Exogenic earth movements and weathering are both caused by internal forces acting on the earth's surface.
b) Exogenic earth movements and weathering are unrelated processes
c) Exogenic earth movements refer to the physical and chemical breakdown of rocks, while weathering refers to the internal movements of the earth's crust.
d) Exogenic earth movements and weathering are closely related to each other

Q.4) Solution (d)

Explanation:

- Exogenic earth movements and weathering are caused by external forces acting on the earth's surface such as water, wind, and ice. Endogenic forces, which are internal forces within the earth, are responsible for movements such as plate tectonics and volcanic activity, not exogenic movements and weathering. **Hence Statement 1 is incorrect**
- Exogenic earth movements and weathering are closely related processes. Exogenic earth movements such as erosion and deposition can expose rocks to external weathering agents such as water, wind, and temperature changes, which can then break down the rocks and minerals over time. **Hence Statement 2 is incorrect**
- Exogenic earth movements refer to the outward movements on the earth's surface caused by external forces such as water, wind, and ice. Weathering, on the other hand, refers to the physical and chemical breakdown of rocks and minerals caused by external processes such as water, wind, and temperature changes. **Hence Statement 3 is incorrect**
- Exogenic earth movements are outward movements on the earth's surface caused by external forces such as water, wind, and ice. Weathering is the physical and chemical breakdown of rocks and minerals caused by external processes such as water, wind, and temperature changes. These two processes are closely related as exogenic movements can expose rocks to external weathering agents, leading to their breakdown over time. **Hence Statement 4 is correct**

Q.5) Which of the following statements accurately describes geosynclines?

a) Geosynclines are elongated depressions that develop along the edges of continents.
b) Geosynclines are mountainous regions that form through tectonic activity.

c) Geosynclines are zones of subsidence in which thick sedimentary deposits accumulate.
d) Geosynclines are volcanic islands that form along the mid-ocean ridges.

Q.5) Solution (c)

Explanation:

- Geosynclines do not necessarily develop along the edges of continents; they can also occur in the middle of continents or on ocean floors. **Hence Statement a is incorrect**
- While mountain ranges can form as a result of geosynclinal processes, geosynclines themselves are not mountainous regions. **Hence Statement b is incorrect**
- Geosynclines are long, narrow basins or troughs that form in the Earth's crust due to subsidence, often caused by tectonic activity. These depressions accumulate large amounts of sediment over time, resulting in the formation of thick sedimentary deposits. **Statement c is correct**
- Volcanic islands that form along mid-ocean ridges are typically associated with processes such as seafloor spreading and plate tectonics, but not with geosynclines. **Hence Statement d is incorrect**

Q.6) Consider the following statements about theory of Continental Drift

1. It lacks a plausible mechanism to show on how the continents can move
2. The theory of continental drift is universally accepted
3. The theory of continental drift explains all geological phenomena

Which of the above statements is/are correct ?

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

Q.6) Solution (d)

Explanation:

- One criticism of the theory of continental drift when it was first proposed was that it lacked a plausible mechanism to explain how continents could move. This was partly due to a lack of understanding of plate tectonics at the time, but it remained a point of criticism until the mid-20th century when plate tectonics became widely accepted. **Hence Statement 1 is correct**
- While the theory of continental drift is widely accepted today, it was not always the case. When it was first proposed by Alfred Wegener in the early 20th century, it was met with skepticism and criticism. **Hence Statement 2 is incorrect**
- While the theory of continental drift is an important part of our understanding of the Earth's geological history, it does not explain all geological phenomena. Other processes, such as volcanic activity and erosion, also play important roles in shaping the Earth's surface. **Hence Statement 3 is incorrect**

Q.7) Consider the following statements about Paleomagnetism

1. Paleomagnetism is the study of the magnetic properties of rocks and minerals to understand the Earth's magnetic field in the past.
2. Paleomagnetism can provide information about the movement of tectonic plates over time.
3. The magnetic field of the Earth has remained constant throughout its history.
4. Paleomagnetism is not useful for understanding the history of the Earth's magnetic field because the magnetic properties of rocks change over time.

Which of the above statements is/are incorrect ?

a) 2 and 3 only
b) 3 and 4 only
c) 1 and 2 only
d) 1 and 3 only

Q.7) Solution (b)

Explanation:

- Paleomagnetism is the study of the magnetic properties of rocks and minerals to understand the Earth's magnetic field in the past. By analyzing the magnetization of rocks and minerals, scientists can reconstruct the past movement of the Earth's magnetic poles and the strength and direction of the magnetic field. **Hence Statement 1 is correct**
- Paleomagnetism can provide information about the movement of tectonic plates over time. As the oceanic crust forms, it records the magnetic polarity of the Earth at the time of its formation. As the crust spreads and moves away from the mid-ocean ridges, the recorded magnetic polarity can be used to determine the age and rate of movement of the oceanic plates. **Hence Statement 2 is correct**
- The magnetic field of the Earth has not remained constant throughout its history. The polarity of the Earth's magnetic field has reversed numerous times in the past, and the strength and direction of the magnetic field have also changed over time. **Hence Statement 3 is incorrect**
- Paleomagnetism is useful for understanding the history of the Earth's magnetic field because the magnetic properties of rocks do not change over time, as long as the rocks remain undisturbed. This allows scientists to reconstruct the past behavior of the magnetic field based on the magnetization of rocks and minerals that formed at that time. **Hence Statement 4 is incorrect**

Q.8) Which of the following statements about the movement of the Indian Plate are correct?

1. The Indian Plate broke away from the Eurasian Plate and started moving southward.
2. The movement of the Indian Plate is responsible for the formation of the Andes mountain range.
3. The Indian Plate began to collide with the Eurasian Plate around 50 million years ago.
4. The collision between the Indian Plate and the Eurasian Plate has not caused any seismic activity in the region.
5. The collision between the Indian Plate and the Eurasian Plate has caused the formation of the Himalayan mountain range.

Which of the above statements is/are correct ?

a) 3 and 5 only

b) 2, 3 and 5 only
c) 1, 3 and 5 only
d) 3, 4 and 5 only

Q.8) Solution (a)

Explanation:

- The Indian Plate broke away from the Eurasian Plate and started moving southward. (This statement is incorrect as the Indian Plate broke away from the African Plate and moved northward towards the Eurasian Plate). **Hence Statement 1 is incorrect**
- The movement of the Indian Plate is responsible for the formation of the Andes mountain range. (This statement is incorrect as the Andes mountain range was formed due to the subduction of the Nazca Plate under the South American Plate). **Hence Statement 2 is incorrect**
- The Indian Plate began to collide with the Eurasian Plate around 50 million years ago. (This statement is correct as the Indian Plate started colliding with the Eurasian Plate around 50 million years ago, resulting in the formation of the Himalayan mountain range). **Hence Statement 3 is correct**
- The collision between the Indian Plate and the Eurasian Plate has not caused any seismic activity in the region. (This statement is incorrect as the collision between the two plates has resulted in significant seismic activity, including earthquakes). **Hence Statement 4 is incorrect**
- The collision between the Indian Plate and the Eurasian Plate has caused the formation of the Himalayan mountain range. (This statement is correct as the collision between the two plates caused the upliftment of the Himalayas due to the compression and folding of the crust). **Hence Statement 5 is correct**

Q.9) Consider the following statements with respect to Island Arc

1. Island arcs are formed by the collision of a oceanic plate with either a oceanic or a continental plate
2. Island arc is a chain of volcanic islands formed above a subduction zone
3. Aleutian Islands is example of an island arc
4. Stratovolcanoes is commonly associated with island arcs

Which of the statements given above are correct?

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

Q.9) Solution (d)

Explanation:

- Island arcs are formed by the subduction of an oceanic plate under another plate. This process can occur between two oceanic plates or between an oceanic and a continental plate. **Hence Statement 1 is correct**
- Island arcs are formed due to the subduction of an oceanic plate under another plate. This results in the melting of the subducted plate, and the magma generated rises to the surface to form a chain of volcanic islands above the subduction zone. **Hence Statement 2 is correct**
- The Aleutian Islands are an example of an island arc. They are located in the northern Pacific Ocean and were formed due to the subduction of the Pacific Plate under the North American Plate. **Hence Statement 3 is correct**
- Stratovolcanoes, also known as composite volcanoes, are typically associated with volcanic arcs. These volcanoes are formed due to the subduction of an oceanic plate under another plate. The explosive eruptions of these volcanoes are caused by the buildup of gases in the viscous magma. **Hence Statement 4 is correct**

10.) Consider the following statements:

1. When two continental plates collide, both plates are destroyed
2. When two oceanic plates converge, both plates are destroyed

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

Q.10) Solution (d)

Explanation:

- When two continental plates collide, neither plate is destroyed. Instead, the plates are forced upward, and the collision results in the formation of mountains. **Hence Statement 1 is incorrect**
- When two oceanic plates converge, one plate is usually subducted under the other, and it melts into the mantle. So, in a sense, one plate is "destroyed." However, the other plate is not destroyed and continues to move. **Hence Statement 2 is incorrect**

Q.11) Which of the following option is 'odd' among the following?

a) Fold Mountains
b) Fault-Block Mountains
c) Dome Mountains
d) Erosion Mountains

Q.11) Solution (d)

Explanation:

- The odd option among the given options is "Erosion Mountains". Fold Mountains, Fault-Block Mountains, and Dome Mountains are all types of mountains that form due to tectonic activities, while Erosion Mountains are not formed by tectonic activities, but rather, by erosion and weathering of pre-existing rocks. **Hence option d is Correct.**

Q.12) Consider the following pairs:

Sl no	Mountain Range	Countries
1	Alps	Switzerland
2	Atlas Mountains	United States
3	Rocky Mountains	New Zealand
4	Southern Alps	Morocco

Which of the pairs given above is/are correctly matched?

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

Q.12) Solution (b)

Explanation:

Mountain Range	Countries
Alps	Switzerland
Atlas Mountains	Morocco
Rocky Mountains	United States
Southern Alps	New Zealand

Q.13.) Consider the following statements

1. Karst landforms are formed by the dissolution of soluble rocks, such as limestone and dolomite.
2. Karst topography is characterized by sinkholes, caves, and underground drainage systems.
3. Karst landforms are only found in areas with high precipitation and high humidity.
4. Karst landforms are the result of volcanic activity.

Which of the following statements about Karst landforms is/are correct?

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

Q.13) Solution (c)

Explanation:

- Karst landforms are typically formed by the dissolution of soluble rocks, such as limestone and dolomite. This occurs when water infiltrates the rock and slowly dissolves it over time, resulting in the creation of unique landforms. **Hence Statement 1 is correct**
- Karst topography is characterized by sinkholes, caves, and underground drainage systems. This is because the dissolution of soluble rock can create voids and spaces underground, which can eventually lead to the formation of sinkholes and caves. **Hence Statement 2 is correct**
- Karst landforms can be found in a range of climatic conditions, and are not exclusively limited to areas with high precipitation and high humidity. They are most commonly found in areas with soluble rock deposits, regardless of the amount of rainfall or humidity in the region. **Hence Statement 3 is incorrect**
- Karst landforms are not the result of volcanic activity, but are instead formed by the dissolution of soluble rocks, typically limestone and dolomite. Volcanic activity can create a different set of landforms, such as volcanic cones and calderas. **Hence Statement 4 is incorrect**

Q.14) Which of the following factors can possibly affect the propagation of tsunami waves?

a) Water depth
b) Wind speed
c) Earthquake magnitude
d) All of the above

Q.14) Solution (d)

Explanation:

- Water depth: Tsunami waves travel faster in deeper water and slower in shallow water. As the waves approach the shoreline and the water depth decreases, the waves become taller, and their speed decreases, leading to an increase in their destructive power. **Hence option a is Correct.**
- Wind speed: Wind speed does not directly affect the propagation of tsunami waves, but it can create surface waves on the ocean that may interfere with the propagation of the tsunami waves. However, strong winds can push the waves farther inland, causing more damage. **Hence option b is Correct.**
- Earthquake magnitude: Tsunami waves are usually generated by large earthquakes with a magnitude of 7.5 or higher on the Richter scale. The greater the magnitude of the earthquake, the more energy is released, resulting in larger and more destructive tsunami waves. **Hence option c is Correct.**

Q.15) Consider the statements about igneous, sedimentary, and metamorphic rocks.

1. Igneous rocks are formed from the accumulation and cementation of sediments.
2. Metamorphic rocks are formed from the alteration of preexisting rocks through heat and pressure.
3. Sedimentary rocks are typically more resistant to erosion than igneous or metamorphic rocks.
4. Sedimentary rocks are made up of fragments of pre-existing rocks that have been compacted and cemented together.

Select the correct answer using the code given below:

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

Q.15) Solution (b)

Explanation:

- Igneous rocks are formed by the solidification and crystallization of magma or lava, not by accumulation and cementation of sediments. **Hence Statement 1 is incorrect**
- Metamorphic rocks are formed from preexisting rocks that have undergone heat and pressure, causing them to recrystallize and change in texture, mineralogy, and sometimes chemical composition. **Hence Statement 2 is correct**
- Sedimentary rocks are typically less resistant to erosion than igneous or metamorphic rocks because they are often softer and composed of loosely cemented sediments. **Hence Statement 3 is incorrect**
- Sedimentary rocks are made up of sedimentary particles, such as rock fragments, minerals, and organic material, that have been transported and deposited by water, wind, or ice. Over time, the sedimentary particles become compacted and cemented together to form a solid rock. **Hence Statement 4 is correct**

Q.16) Which of the following statements is/are true about fluvial erosional landforms is true?

1. They are only found in arid environments.
2. They are formed by the erosion of rock and sediment by flowing water.
3. They are not influenced by the velocity of the water.

Select the correct answer using the code given below:

a) 1 only
b) 2 only
c) 3 only
d) All of the above

Q.16) Solution (b)

Explanation:

- Fluvial erosional landforms can be found in any environment where there is flowing water, not just in arid environments. **Hence Statement 1 is incorrect**
- Fluvial erosional landforms are formed by the continuous erosion of rock and sediment by flowing water over a long period of time. **Hence Statement 2 is correct**
- The velocity of the water is a crucial factor in the formation of fluvial erosional landforms. Higher velocity water can erode material more quickly and create different landforms compared to slower moving water. **Hence Statement 3 is incorrect**

17.) Which of the following statements is/are true regarding glacial landforms?

1. Glaciers can erode the landscape through processes such as plucking and abrasion.
2. Moraines are depositional landforms created by the accumulation of sediment at the edge or along the surface of a glacier.
3. A drumlin is a depositional landform created by the lateral movement of a glacier.
4. U-shaped valleys are erosional landforms formed by the down cutting of a glacier.

Select the correct answer using the code given below:

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

Q.17) Solution (d)

Explanation:

- Glaciers can erode the landscape through processes such as plucking and abrasion: Glaciers can pick up rocks and sediments and carry them away through plucking. This occurs when the ice freezes onto the rock surface and pulls it away during glacier movement. Abrasion occurs when rocks carried by the ice wear down the bedrock beneath the glacier. **Hence Statement 1 is correct**

- Moraines are depositional landforms created by the accumulation of sediment at the edge or along the surface of a glacier: Moraines are piles of rock and sediment that accumulate along the edges and surface of a glacier. They are created when the glacier erodes the landscape and carries the debris along with it. **Hence Statement 2 is correct**
- A drumlin is a depositional landform created by the lateral movement of a glacier: A drumlin is an elongated hill formed by glacial till that has been molded into a streamlined shape by the movement of a glacier. They are formed by the deposition of material transported by a glacier. **Hence Statement 3 is correct**
- U-shaped valleys are erosional landforms formed by the down cutting of a glacier: U-shaped valleys are formed by the erosive power of glaciers. As glaciers move down valleys, they erode the valley floor and walls, forming a wide, U-shaped valley with a flat bottom. **Hence Statement 4 is correct**

Q.18) Which of the following statements is true about marine landforms and arid landforms?

a) Marine landforms are mainly formed by wind erosion and deposition, while arid landforms are mainly formed by water erosion and deposition.
b) Marine landforms are generally found at high altitudes only, while arid landforms are found at low altitudes.
c) Marine landforms are mostly characterized by the presence of water bodies, while arid landforms are characterized by the complete absence of water bodies.
d) Marine landforms are formed by the action of water, waves, and currents, while arid landforms are formed by the action of wind and occasional rainfall.

Q.18) Solution (d)

Explanation:

- Marine landforms are primarily formed by the action of water and not wind, while arid landforms are mainly formed by wind erosion and deposition rather than water erosion and deposition. **Hence option a is incorrect**
- Marine landforms are typically found in and around bodies of water, such as oceans, seas, and lakes, and can be found at a variety of elevations, from sea level to high altitudes. Some examples of marine landforms include coastlines, coral reefs, and seamounts.
- Similarly, arid landforms are not exclusively found at low altitudes. Arid landscapes are characterized by a lack of precipitation and high rates of evaporation, which can occur at

any elevation depending on the climatic conditions of the region. Some examples of arid landforms include deserts, canyons, and mesas, which can be found at both high and low elevations. **Hence option b is incorrect**

- Marine landforms are generally associated with water bodies, it's not entirely accurate to say that arid landforms are completely devoid of water. Arid regions can still have water bodies, such as oases, rivers, and occasional rainfall events that result in temporary lakes or streams. **Hence option c is incorrect**
- Marine landforms are formed by the action of water, waves, and currents, while arid landforms are formed by the action of wind and occasional rainfall. **Hence option d is correct**

Q.19) Consider the following statements

1. Lake Baikal is the deepest lake in the world
2. The Caspian Sea is the largest lake in the world
3. Lake Victoria is the largest lake in South America
4. Lake Titicaca is the highest navigable lake in the world

Which of the statements given above is/are correct?

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

Q.19) Solution (d)

Explanation:

- Lake Baikal, located in Russia, holds approximately 20% of the world's fresh water and is the deepest lake in the world. **Hence Statement 1 is correct**
- The Caspian Sea is technically a lake, with an area of 143,000 square miles, making it the largest lake in the world by both surface area and volume. **Hence Statement 2 is correct**
- Lake Victoria, located in East Africa, covers an area of approximately 26,590 square miles and is the largest lake in Africa and the second-largest freshwater lake in the world after Lake Superior. **Hence Statement 3 is incorrect**
- Lake Titicaca, located in the Andes Mountains on the border of Peru and Bolivia, is the highest navigable lake in the world at an altitude of 3,812 meters. **Hence Statement 4 is**

correct.

Q.20) Which of the following statements about the plateaus of India are correct?

1. The Deccan Plateau is the largest plateau in India and is composed mainly of lava flows.
2. The Chota Nagpur Plateau is rich in minerals such as coal, iron, and mica.
3. The Malwa Plateau is a volcanic plateau formed by the eruption of ancient volcanoes.
4. The Western Ghats is a low-lying plain in India that is not considered a plateau.
5. The Aravalli Range is a plateau located in the central part of India.

Which of the statements given above is/are correct?

a) 1, 2, 3 and 4 only
b) 2, 3 and 4 only
c) 1, 2 and 3 only
d) 1, 2, 3 and 5 only

Q.20) Solution (c)

Explanation:

- The Deccan Plateau is the largest plateau in India and is primarily composed of volcanic rocks and lava flows. **Hence Statement 1 is correct**
- The Chota Nagpur Plateau is a mineral-rich plateau located in eastern India and is known for its abundance of coal, iron, mica, and other minerals. **Hence Statement 2 is correct**
- The Malwa Plateau is a volcanic plateau formed by the eruption of ancient volcanoes. **Hence Statement 3 is correct**
- The Western Ghats is not a plain, but rather a mountain range that runs parallel to the western coast of India. **Hence Statement 4 is incorrect**
- The Aravalli Range is not a plateau, but rather a range of mountains located in western India. **Hence Statement 5 is incorrect**

Q.21) Consider the following statements about Mission Amrit Sarovar

1. The Mission is aimed at developing and rejuvenating 75 water bodies in each district of the country.
2. Bhaskaracharya National Institute for Space Application and Geo-informatics (BISAG-N) is the technical partner for the Mission.
3. NITI Aayog is the implementing agency at the State Level.

Choose the correct statements:

a) 1 and 2
b) 2 and 3
c) 1 and 3
d) 1, 2 and 3

Q.21) Solution (a)

Explanation:

- With a view to conserve water for the future, the Prime Minister launched a new Mission on Amrit Sarovar on 24th April 2022. The Mission is aimed at developing and **rejuvenating 75 water bodies** in each district of the country as a part of celebration of Azadi ka Amrit Mahotsav. In total, it would lead to creation of 50,000 water bodies of a size of about an Acre or more. **Hence, statement 1 is correct**.
- **BhaskaracharyaNational Institute for Space Application and Geoinformatics (BISAG-N)** has been engaged as Technical partner for the Mission. **Hence, statement 2 is correct.**
- The Mission works through the States and Districts, through refocusing of various schemes such as Mahatma Gandhi NREGS, XV Finance Commission Grants, PMKSY sub schemes such as Watershed Development Component, Har Khet Ko Pani besides States' own schemes.
- This Mission has been **launched with a whole of Government Approach in which 6 Ministries/Department** namely Dept of Rural Development , Department of land resources, Department of Drinking Water and Sanitation, Department of Water resources, Ministry of Panchayati Raj, Ministry of Forest, Environment and Climate changes. **Hence, statement 3 is not correct.**

Source: Click Here

Q.22) Consider the following statements about Small Satellite Launch Vehicle (SSLV)

1. It is a launch vehicle designed to orbit satellites weighing less than 500kg in Low Earth Orbit.
2. It is a 2 stage rocket configured with 2 Solid Propulsion Stages and liquid propulsion based Velocity Trimming Module as a terminal stage

Choose the incorrect statements:

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

Q.22) Solution (b)

Explanation:

- SSLV is a **rocket** that is designed to orbit satellites weighing less than **500kg in Low Earth Orbit and 300 kg to Sun Synchronous Orbit (SSO)**. **Hence, statement 1 is correct.**
- SSLV is the **smallest vehicle** at 110-ton mass at ISRO.
- It will take only 72 hours to integrate, unlike the 70 days taken now for a launch vehicle.
- The other features include: flexibility in accommodating multiple satellites, Launch on demand feasibility, minimal launch infrastructure requirements, etc.
- It is a **3 stage Launch Vehicle** configured with three Solid Propulsion Stages and liquid propulsion-based Velocity Trimming Module (VTM) as a terminal stage. **Hence, statement 2 is not correct.**

Source: Click Here

Q.23) Consider the following statements with respect to Indian Virtual Herbarium

1. The portal aims to provide information on the rich floral & faunal diversity of India through online access.
2. It was developed by the Botanical Survey of India (BSI).

Choose the correct statements:

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

Q.23) Solution (b)

Explanation:

- It aims to provide complete information on herbarium specimens about the floral diversity of India and other countries stored in the cabinet of the herbarium building through online access.
- The database created is the largest storage of information **about plant diversity** in India. **Hence statement 1 is not correct.**
- It was developed by the scientists of the Botanical Survey of India (BSI). **Hence statement 2 is correct.**
- At present, the digital herbarium of the Botanical Survey of India has four categories – Cryptogam type specimens, Cryptogams general specimens, Phanerogam type specimens, and Phanerogams general specimens.
- It will also aid the research studies and provide valuable insight for global plant research.
- Each record in the digital herbarium includes an image of the preserved plant specimen, scientific name, collection locality, and collection date, collector name, and barcode number.

Source: Click Here

Q.24) Consider the following statements about Criminal Procedure (Identification) Act, 2022

1. The Act empowers the authorities to collect physical and biological samples of the person detained under any preventive detention law.
2. Refusal to give data is considered an offence under the act.
3. The National Crime Records Bureau is the central agency to maintain the records of collected samples.

Choose the correct statements:

a) 1 and 2
b) 2 and 3
c) 1, 2 and 3
d) 1 and 3

Q.24) Solution (c)

Explanation:

Criminal Procedure (Identification) Act, 2022 expands:

- the type of data that may be collected,
- persons from whom such data may be collected, and the authority that may authorise such collection.

Persons whose data may be collected:

- Convicted or arrested for any offence. However, biological samples may be taken forcibly only from persons arrested for offences against a woman or a child, or if the offence carries a minimum of seven years imprisonment
- Persons detained under any preventive detention law
- On the order of Magistrate, from any person (not just an arrested person) to aid investigation

Hence, statement 1 is correct.

- Under the act, **resistance or refusal to give data will be considered an offence** of obstructing a public servant from doing his duty. **Hence, statement 2 is correct.**
- The **National Crime Records Bureau (NCRB)** will be the central agency to maintain the records.
- It will share the data with law enforcement agencies. Hence, statement 3 is correct.

Source: Click Here

Q.25) Consider the following statements about Minerals Security Partnership

1. It is an initiative led by USA to secure supply chains of critical minerals, aimed at reducing dependency on China.

2. The members of the initiative include India, USA, Australia, Germany, France, and the African Union.
3. The grouping focuses on the supply chains of minerals such as Cobalt, Nickel, Lithium, and the 17 rare earth minerals.

Choose the incorrect statements:

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

Q.25) Solution (c)

Explanation:

- It is an ambitious new **US-led partnership to secure supply chains** of critical minerals, aimed at reducing dependency on China. **Hence statement 1 is correct**.
- **India is not part of the grouping**. **Hence statement 2 is not correct**.
- Besides the US, the MSP includes Australia, Canada, Finland, France, Germany, Japan, the Republic of Korea, Sweden, the United Kingdom, and the European Commission.
- **The new grouping, industry insiders say, could focus on the supply chains of minerals such as Cobalt, Nickel, Lithium, and also the 17 "rare earth" minerals.**
- While Cobalt, Nickel, and Lithium are required for batteries used in electric vehicles, rare earth minerals are critical, in trace amounts, in semiconductors and high-end electronics manufacturing. Hence statement 3 is correct.
- This new alliance is seen as being primarily focused on evolving an alternative to China, which has created processing infrastructure in rare earth minerals and has acquired mines in Africa for elements such as cobalt.

Source: Click Here

Q.26) In a competitive exam, the number of passed students was four times the number of failed students. If there had been 35 fewer appeared students and 9 more had failed, the ratio of passed and failed students would have been 2: 1, then the total number of students appeared for the exam?

a) 175

b) 165
c) 145
d) 155

Q.26) Solution (d)

Explanation:

Let the number of failed students be x

=> Number of passed students = 4x

So total number of students was 5x

From the given data,

If total number of students be 5x – 35

=> (4x-35-9)/(x+9) = 2/1

=> 4x – 44 = 2(x + 9)

=> 4x – 2x = 18 + 44

=> x = 31

Total number = 31×5 = 155

Q.27) Sandeep starts a business with Rs. 36,000. After a certain period of time he is joined by Dhanu, who invests Rs. 27,000. At the end of the year they divide the profit in the ratio of 8: 3. For what period did Dhanu join Sandeep?

a) 7 months
b) 8 months
c) 6 months
d) 10 months

Q.27) Solution (c)

Explanation:

Ratio of profit = Capital of Sandeep*time/capital of Dhanu*time

Let Deepak's investment be for x months.

Then, 8/3 = (36,000*12) / (27,000*X)

On solving X = 6 months

Q.28) The salaries of Ramesh, Ganesh and Rajesh were in the ratio 6:5:7 in 2010, and in the ratio 3:4:3 in 2015. If Ramesh's salary increased by 25% during 2010-2015, then the percentage increase in Rajesh's salary during this period is closest to

a) 8
b) 9
c) 7
d) 10

Q.28) Solution (c)

Explanation:

The salaries of Ramesh, Ganesh and Rajesh were in the ratio 6: 5: 7 in 2010

In 2015, their salaries are in the ratio 3: 4: 3 respectively.

It is also given that; Ramesh's salary increases by 25% during 2010 - 2015

So, Ramesh's salary in 2015 = 5/4 x 6 = 7.5

Salary in 2015 = 3: 4: 3 (Given)

Salary in 2015 = 7.5: x: y (From data)

3 in order to jump to 7.5, must be multiplied by 2.5

So, multiplying 2.5 to all the other values,

Salary in 2015 = 7.5: 10: 7.5

Percentage increase in Rajesh's salary during 2010 - 2015 = Percentage increase from 7 to 7.5 = 0.5/7 x 100, which is close to 7%

Q.29) In a mixture of three varieties of tea, the ratio of their weights is 4 : 5 : 8. If 5 kg tea of the first variety, 10 kg tea of the second variety and some quantity of tea of the third variety are added to the mixture, the ratio of the weights of three varieties of tea becomes as 5 : 7 : 9. In the final mixture, the quantity (in kg) of the third variety of tea was

a) 42
b) 45
c) 48
d) 40

Q.29) Solution (b)

Explanation:

Let quantity of first variety of tea = 4x kg.

Quantity of second variety of tea = 5x kg.

Quantity of third variety of tea = 8x kg.

Let y kg of third variety of tea be mixed.

∴ Resultant ratio = (4x + 5) : (5x + 10) : (8x + y)

∴ (4x+5)/(5x+10) = 5/7

28x + 35 = 25 x + 50

⇒ 28x – 25x = 50 – 35

⇒ 3x = 15 ⇒ x = 15/3 = 5

(5x+10)/(8x+y) = 7/9

(5*5+10)/(8*5+y) = 7/9

35/(40+y) = 7/9

⇒ 40 + y = 9 × 5

⇒ y = 45 – 40 = 5 kg.

∴ Required quantity of third variety of tea

= 8x + y = 8 × 5 + 5 = 45 kg

Read the following passage and answer the item that follow. Your answer to these items should be based on the passages only

Passage 1

A holistic reading of the current state of our constitutional jurisprudence would demonstrate that the right to privacy is firmly embedded in our constitutional scheme as a non-negotiable imperative that owes no apology to a myopic view of our republican charter. Indeed, considering the fundamental principles of the nation as "not rules for the passing hour, but principles for an expanding future, the apex court, as the ultimate arbiter of constitutional conscience, has given fundamental rights their meaning in new settings consistent with the aspirations of our people. This is so that we may have a 'living constitution' which can protect, preserve and defend sacrosanct libertarian values that remain the bedrock of the Republic and constitute the core of the Constitution. Rather than deny us our constitutional right, the Union Government ought to enact a privacy legislation to clearly define the rights of citizens consistent with the promise of the Constitution.

Q.30) Which of the following is the author most likely to agree with?

a) Our republican charter has a myopic view of the right to privacy
b) The Supreme Court has been rigid in its interpretation of the Constitution
c) The right to privacy is rooted in our constitutional scheme
d) A new privacy legislation has to be defined as the right to privacy is not dealt with in the Constitution

Q.30) Solution (c)

Explanation:

The question asks which us to identify the statement the author is most likely to agree with.

Option a: Clearly, that is not what the author states. This is a direct contradiction of the author's view.

Option b: Again, the author states that the apex court has, in fact, interpreted fundamental rights in new settings consistent with the aspirations of the people. The author is not likely to agree with statement b.

Option c: This is the main idea of the paragraph. The author will agree with this statement.

Option d: While the author talks of a new privacy legislation, he does not say that the right to privacy is not dealt with in the constitution. He believes the right to privacy is firmly embedded in the constitution.