# IASbaba 60 Days 2020 – Geography Day 7

**Q.1) With respect to the seismic waves consider the following statements:**

1. Primary waves travel to and fro in the line of propagation and travel only in liquid medium
2. Secondary waves travel perpendicular to the line of propagation and they travel both in solid and liquid medium.

**Which amongst the above statements is /are correct?**

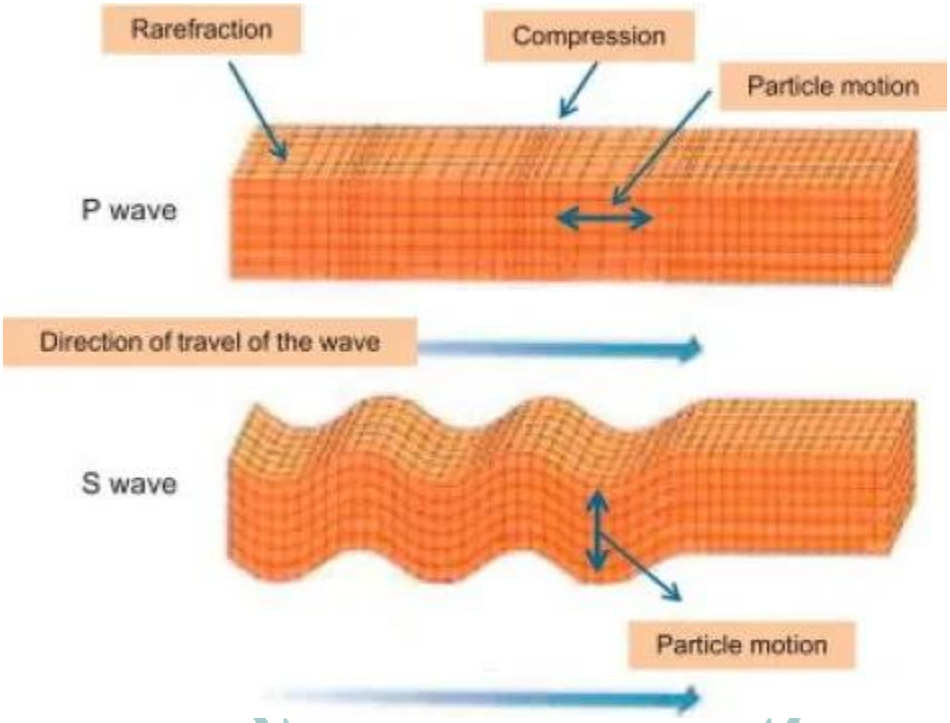
a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 nor 2

**Q.1) Solution (d)**

**Basic Information:**

- Seismic waves are waves of energy that travel through the Earth's layers, and are a result of earthquakes, volcanic eruptions, magma movement, large landslides and large man-made explosions that give out low-frequency acoustic energy.
- The place of occurrence of an earthquake is called 'focus' and the place which experiences the seismic event first is called 'epicenter'.
- Epicenter is located on the earth's surface and focus is always inside the earth.
- The propagation velocity of seismic waves depends on density and elasticity of the medium as well as the type of wave. Velocity tends to increase with depth through Earth's crust and mantle, but drops sharply going from the mantle to the outer core.
- Seismic waves are generally divided into 1. Primary waves, 2. Secondary waves and 3. Surface waves.
    1. Primary waves:
        - They are called longitudinal waves or compressional waves and are analogous to sound waves where particles move to and fro in the line of propagation.
        - They travel both in solid and liquid medium.
    2. Secondary Waves:
        - They are called transverse or distortional waves and are analogues to the water ripples where particles move perpendicular to the line of propagation.
        - They cannot travel through liquid medium.
    3. Surface waves:

- They are called long period waves
- They generally affect only the surface of the earth and die at smaller depth but are considered destructive compared to the 'p' and 's' waves.




**Statement Analysis:**

| Statement 1 | Statement 2 |
|---|---|
| **Incorrect** | **Incorrect** |
| Primary waves travel both in solid and liquid medium. | Secondary waves travel only in solid medium. |

**Q.2) Various sources of energy (Heat) act as force for the movement of plates in the earth crust. Which among the following are the sources of such energy?**

1. Radioactive decay
2. Tidal forces generated due to attraction between SUN and MOON.
3. Residual heat from earth's formation.

**Choose the correct option.**

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

**Q.2) Solution (b)**

**Basic Information:**

- As per the Plate tectonic theory, the surface of the earth and the interior are dynamic. The mobile rock beneath the rigid plates is believed to be moving in a circular manner.
- Heat within the earth comes from two main sources: radioactive decay and residual heat. This heat melts the rock beneath the plates and gives mobility. The mobile rock beneath the rigid plates is believed to be moving in a circular manner. The heated material rises to the surface, spreads and begins to cool, and then sinks back into deeper depths. This cycle is repeated over and over to generate a convection cell. This slow movement of mantle below the plates drives their movement.

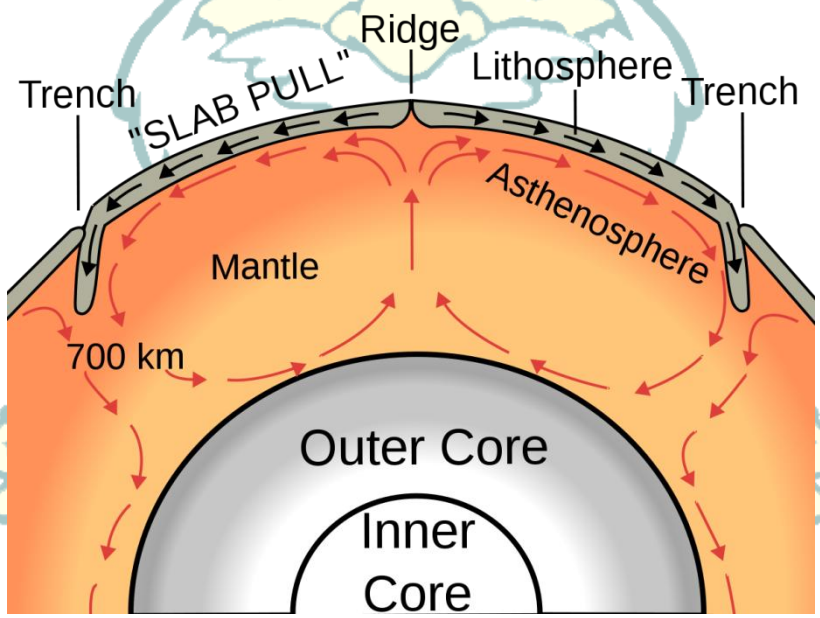



**Image: Convective cell**

- The radioactive decay of naturally occurring chemical elements like uranium, thorium, and potassium releases energy in the form of heat which slowly migrates toward the Earth's surface.

- Residual heat is gravitational energy left over from the formation of the Earth 4.6 billion years ago by the "falling together" and compression of cosmic debris.

**Q.3) Which among the following is the evidence of Continental Drift theory proposed by Alfred Wegener?**

a) Presence of Volcanic ridges along the mid-atlantic seabed.
b) Evidence of paleomagnetism along the atlantic seabed.
c) Evidence of Carboniferous glaciation of Brazil, South Africa and peninsular India.
d) Evidence of earthquakes along the coasts of the Atlantic ocean.

**Q.3) Solution (c)**

**Basic Information:**

According to Alfred Wegener's Continental drift theory earth's land had once been joined into a single supercontinent surrounded by an ocean. This continental mass started breaking up about 200 million years ago. Since then the pieces had moved to their present positions and are still moving.

Evidences in support of the theory

1. **"Jig saw" fit-** Wegener was struck by the geographical similarity between the opposite coasts of the Atlantic Ocean. The outlines of the two coasts appears to be the detached portion of the other ie. The east coast of north and South America can be exactly fit into the left coast of Africa and Europe.
2. **Geological structure**- there is remarkable similarity in geological structure along the two coasts of Atlantic. The best example is provided by the Appalachian mountains of North America which come right up to the coast and continue their trend across the ocean in old Hercynian Mountains of south west Ireland, Wales and central Europe. The opposite coasts of Africa and Brazil display even greater resemblance in their structure and rocks.
3. **Permo-carboniferous glaciations**- it presents a strong proof that at one point of time these land masses were assembled together , since the evidence of this glaciation are found in Brazil, Falkland island, South Africa, Indian peninsula as well as Australia. It is difficult to explain these extensive glaciations on the basis of existing distribution of landmass and water. According to Wegener at the time of Pangaea, the South Pole was situated near Durban of the present coast of South Africa.

4. **Similar Fossil remains of terrestrial animals** are found on both coasts of the Atlantic. This cannot be possible if the two landmasses were not joined as it is quite impossible for these animals to swim across the Atlantic.

**Q.4) What does the term 'Isostasy' refer to?**

a) Mechanical stability between the upstanding relief features and low lying basins on a rotating earth.
b) Line joining similar relief features on the earth's surface.
c) Line joining similar relief features on ocean bed.
d) Energy equilibrium attained in the earth's interior due heat transfer between various layers within the earth.

**Q.4) Solution (a)**

**Basic Information:**

- The term "Isostasy" is derived from "Isostasios", a word of Greek language meaning the state of being in balance.
- Different relief features of varying magnitude for example mountains, plateaus, plains, lakes etc standing on the earth's surface are probably balanced by certain definite principal on a rotating earth. Otherwise, these would have not been maintained in their present form.
- Any disturbance in this balance results in violent earth movements and tectonic events.
- Thus 'Isostasy' is defined as the mechanical stability between the upstanding relief features and the low lying basins on a rotating earth.

**Q.5) Which of the following landforms are formed by wind?**

1. Yardang
2. Loess
3. Sand spit
4. Arete
5. Zeugen

**Choose the correct option.**

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

d) All of the above

**Q.5) Solution (b)**

**Explanation:**

| Agents | Erosive landforms | Depositional Landforms |
|---|---|---|
| Fluvial / Water channel/river | V-Shape valley, potholes, waterfalls, plunge pools, cascades, rapids, meanders | Oxbow lake, flood plain, braided channel, riverine island, natural levees, delta, |
| Aeolian/Wind | Blowout, mushroom rock, Yardang, Driekanter, Demoiselles, zeugen | Sand dunes, siefs, Nephka, Loess |
| Glacial | Arete, Cirque, Horn, U-shape valley, Hanging valley, Fjord | Outwash plain, eskers, drumlin, kettle holes, kame, morain |
| Sea waves | Notch, Cave, stack, cove, | Beach, sand bar, hook, loop, tombolo |

**Q.6) Which among the following are active volcanoes?**

1. Mt. Cameroon.
2. Mt. Vesuvius.
3. Mt. Chimborazo.
4. Mt. Etna.
5. Mt Stromboli.

**Choose the correct option**

a) 2, 4 and 5 only
b) 1, 2, 4 and 5 only
c) 2, 3, 4 and 5 only
d) All of the above

**Q.6) Solution (b)**

**Basic Information:**

| Active Volcanoes | Dormant Volcanoes | Extinct Volcanoes. |
|---|---|---|

| | | |
|---|---|---|
| Mt. Cameroon, Mt Etna, Mt. Vesuvius, Mt Stromboli, Mt Saint Helena, Barren Island, Mt.Fuji. | Mauna Kea, Mt. Kilimanjaro, Mt. Hood, Mt.Pelee | Mt. Chimborazo, Ben Navis, Mt Kulal, Mt. Buninyong. |

**Q.7) "Gutenberg Discontinuity" in the earth's interior is found between which layers?**

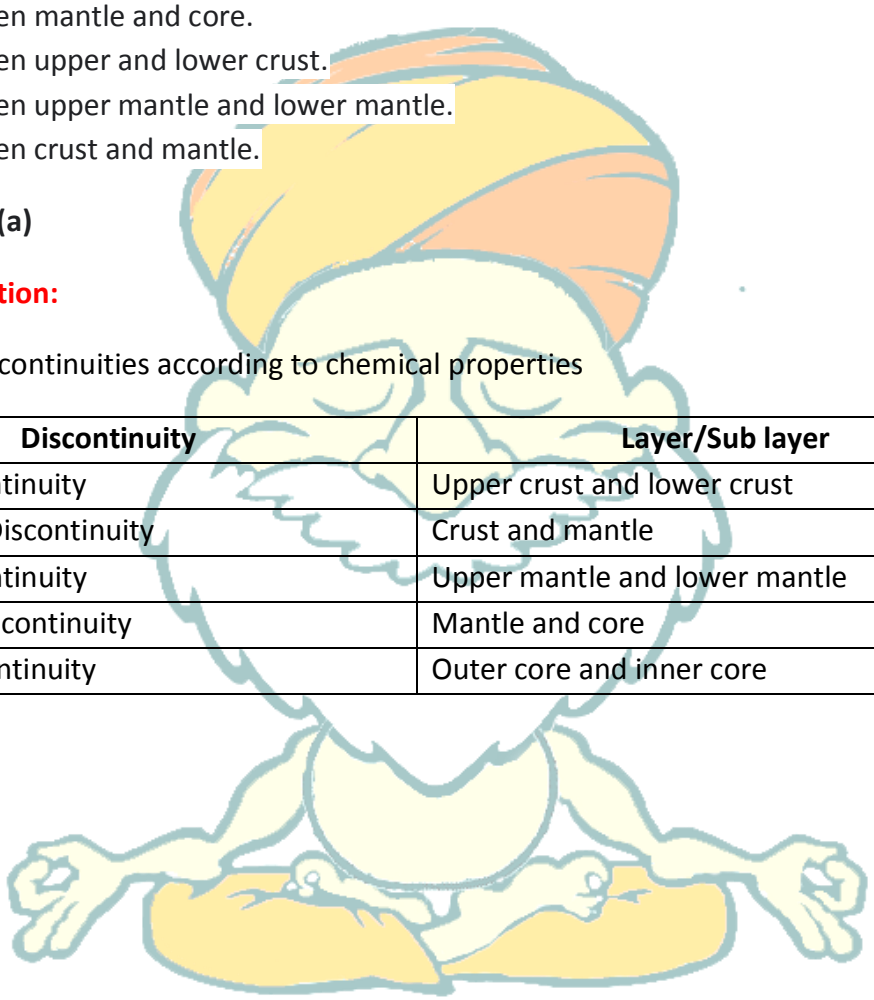
a) Between mantle and core.
b) Between upper and lower crust.
c) Between upper mantle and lower mantle.
d) Between crust and mantle.

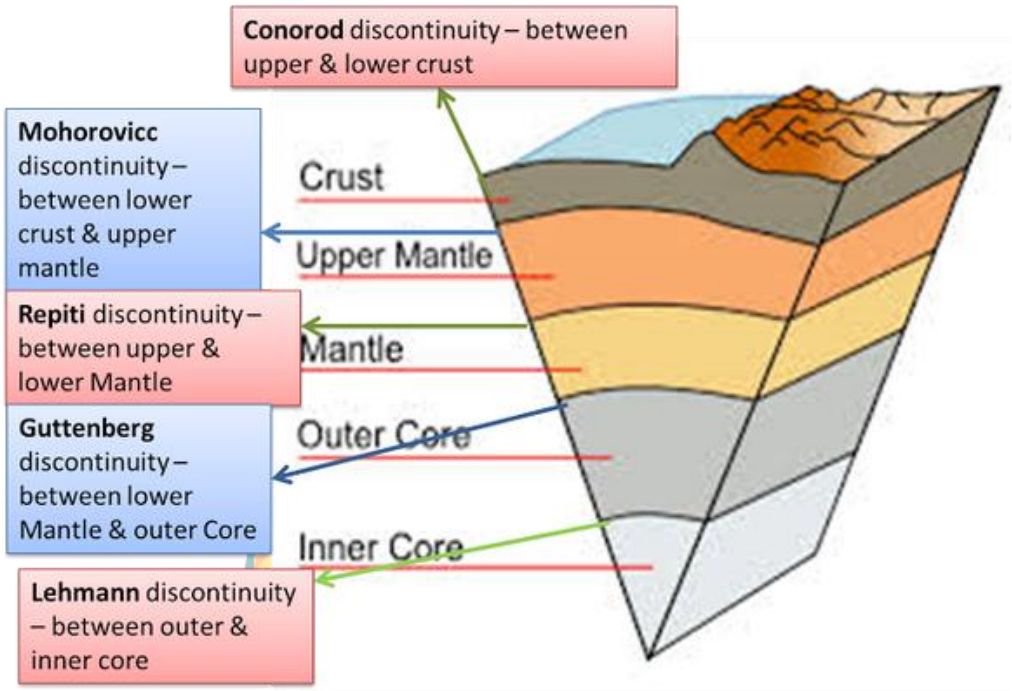
**Q.7) Solution (a)**

**Basic Information:**

Layers and discontinuities according to chemical properties

| Discontinuity | Layer/Sub layer |
|---|---|
| Conrad Discontinuity | Upper crust and lower crust |
| Mohorovicic Discontinuity | Crust and mantle |
| Repetti Discontinuity | Upper mantle and lower mantle |
| Gutenberg Discontinuity | Mantle and core |
| Lehman Discontinuity | Outer core and inner core |






**Q.8) The drainage pattern of an area depends on various factors. Which among the following are the factors controlling the drainage pattern?**

1. Rock type.
2. Geologic Structure.
3. Denudational history.
4. Climatic Conditions.

**Choose the correct option**

a) 1, 2 and 4 only
b) 1 and 2 only
c) 1, 2 and 3 only
d) All of the above

**Q.8) Solution (d)**

**Basic Information:**

- The flow of water through a particular channel is called drainage.
- In geomorphology, drainage systems, also known as river systems, are the patterns formed by the streams, rivers, and lakes in a particular drainage basin.

- Drainage pattern means spatial arrangement and form of drainage system in terms of geometrical shapes in the areas of different rock types, geologic structure, climatic conditions and denudational history.
- Various drainage patterns include.
    1. **Trellised Drainage pattern**: In this form the primary tributaries flow in parallel and secondary tributaries join them at right angles. Majorly found in higher altitudes of Himalayas.
    2. **Dendritic Drainage pattern**: In this form, the network of tributaries of various orders and magnitudes of the trunk or the master stream resembles the branches and roots of a tree. Best examples include the basins of river Cauvery, Mahanadi etc.
    3. **Radial Drainage pattern**: In this form, the streams diverge from central higher point. examples include the drainage pattern formed by South Koel, Subarnarekha in the Ranchi Plateau.
    4. **Centripetal Drainage pattern**: In this form, the streams converge at a point which is generally a depression or a basin. Best example is the Kathmandu Valley of Nepal.
    5. **Annular Drainage pattern**: In this form, the tributaries of the master stream are developed in the form of a circle. The sonapet dome of Uttaranchal presents the best example of this type of pattern.

**Q.9) Which among the following is the major difference between the 'Geysers' and 'Hot Springs'?**

a) Geysers spout hot water without any explosion while Hot springs spout hot water explosively.
b) Geysers are found in any part of the world while hot springs are specific to volcanic areas.
c) Geysers spout hot water explosively while hot springs spout hot water without any explosion.
d) Geysers spout hot water continuously while hot springs spout water intermittently.

**Q.9) Solution (c)**

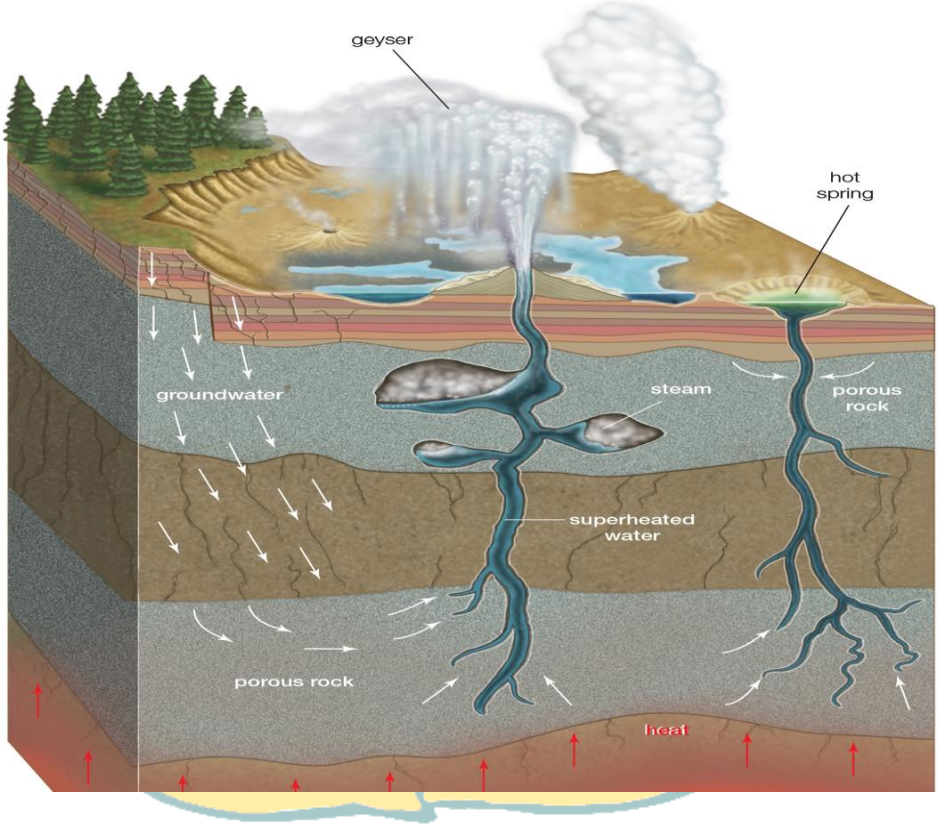
**Basic Information:**

**Geysers:**

- Geysers are fountains of hot water and superheated steam that may spout up to a height of 150 feet from the earth's beneath.
- The jet of water is usually emitted with an explosion.
- They are associated with volcanic regions or volcanic activity.
- Examples include Great Geyser of Iceland, Yellowstone National Park etc.

**Hot Springs:**

- In hot springs water rises to the surface without any explosion.
- In this water sinks deep enough beneath the surface to be heated by the interior forces.
- Such springs contain dissolved minerals.
- Examples include the hot springs of Yellowstone national park.




**Q.10) Which among the following landforms are associated with the mature stage of development?**

1. Gorges
2. Wide river valleys
3. Oxbow lakes.
4. Waterfalls

5. Meanders

**Choose the correct option**

a) 2, 3 and 5 only
b) 1, 2, 3 and 4 only
c) 1, 3, 4 and 5 only
d) All of the above

**Q.10) Solution (a)**

**Basic Information:**

According to the Davis's Cycle of Erosion there are three stages in the landform development. Youth stage, Matured stage and old stage

| Stage of Development | Landforms |
|---|---|
| Youth | V-shaped valleys, rapids, streams, gorges, waterfalls |
| Mature | Wide shaped valleys, meanders, Oxbow lakes, river capture |
| Old stage | Undulating plain, Peneplain |

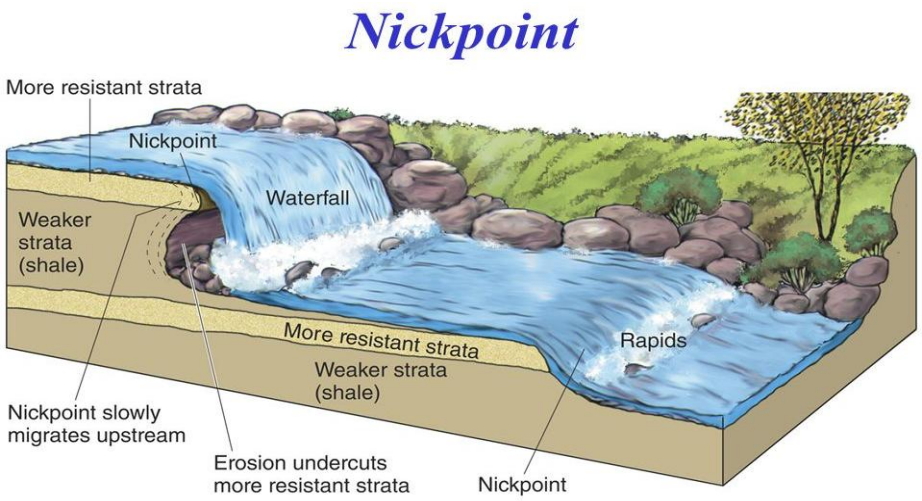
**Q.11) What does the term 'Knickpoint' in landform development refer to?**

a) An elevated platform from which glacier descends.
b) Sharp bend in the river flow.
c) Part of a river where there is a sharp change in channel slope.
d) A landform associated with the old stage of development in denudational chronology.

**Q.11) Solution (c)**

**Basic Information:**

- In geomorphology, a knickpoint or Nickpoint is part of a river or channel where there is a sharp change in channel slope, such as a waterfall or lake.
- Knickpoints reflect different conditions and processes on the river, often caused by previous erosion due to glaciation or variance in lithology.
- In the cycle of erosion model, knickpoints advance one cycle upstream, or inland, replacing an older cycle.
- They are the result of rejuvenation.




**Q.12) With respect to the Igneous rocks consider the following statements.**

1. They are crystalline in structure.
2. They contain fossils.
3. They are resistant.

**Which of the above statements is/are correct ?**

a) 1 only
b) 1 and 3 only
c) 1 and 2 only
d) All three.

**Q.12) Solution (b)**

**Basic Information:**

- Igneous rock or magmatic rock, is one of the three main rock types, the others being sedimentary and metamorphic.
- They are formed by the cooling and solidification of molten rock from beneath the earth's crust.

**Properties:**

1. They are crystalline in structure.
2. They do not occur in strata (layers) and do not contain fossils.
3. They are hard and resistant compared to other rocks.

- In terms of origin there are two main classes of igneous rocks.

1. Plutonic Rocks: These are formed at some depth in the earth's crust. They have cooled and solidified slowly so that large easily recognisable crystals have been formed. e.g, granite, gabbro etc.
2. Volcanic rocks: They are molten rocks poured out of volcanoes as lavas. They solidify rapidly on earth's surface. e,g basalt.

**Statement Analysis:**

| Statement 1 | Statement 2 | Statement 3 |
|---|---|---|
| **Correct** | **Incorrect** | **Correct** |
| They are normally crystalline in structure | They do not contain fossils. Sedimentary rocks contain fossils. | They are hard and resistant due to the slow process of cooling and solidification. |

**Q.13) With respect to the metamorphic rocks consider the following pairs:**

| | Parent rock | Metamorphic rock |
|---|---|---|
| 1. | Clay | Slate. |
| 2. | Sandstone | Marble. |
| 3. | Granite | Gneiss. |
| 4. | Shale | Schist. |

**Which of the above pairs are correctly matched?**

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

**Q.13) Solution (c)**

**Explanation:**

- The metamorphic rock structure and feature depends on the parent rock. Through various agents of climate and time period the parent rock converts into metamorphic rock.

| Parent rock | Metamorphic rock |
|---|---|

| | |
|---|---|
| Clay | Slate |
| Limestone | Marble |
| Sandstone | Quartzite |
| Granite | Gneiss |
| Shale | Schist and slate |
| Coal | Graphite |

**Q.14) Which one of the following statements is the correct definition of Exorheic drainage basins?**

a) These are inland drainage basins which do not drain into the ocean.
b) These are drainage basins that ultimately drain into the ocean.
c) These are drainage basins having features of erosional surfaces.
d) These are drainage basins in the karst Cuesta Topography.

**Q.14) Solution (b)**

**Basic Information:**

- An endorheic basin is a limited drainage basin that normally retains water and allows no outflow to other external bodies of water, such as rivers or oceans, but converges instead into lakes or swamps, permanent or seasonal, that equilibrate through evaporation. Such a basin may also be referred to as a closed or terminal basin or as an internal drainage system or interior drainage basin.
- Exorheic, or open lakes drain into a river, or other body of water that ultimately drains into the ocean.

**Q.15) Landforms produced by the chemical weathering of carbonate rocks are called Karst Topography. Which among the following are necessary conditions for the formation of Karst topography?**

1. Presence of massive limestones.
2. Carbonate rocks should be non-porous.
3. Carbonate rocks should be highly folded and faulted.
4. Substantial rainfall in the area.

**Choose the correct option**

a) 1, 3 and 4

b) 1, 2 and 4
c) 1, 2 and 3
d) All of the above

**Q.15) Solution (d)**

**Basic Information:**

- Karst is a topography formed from the dissolution of soluble rocks such as limestone, dolomite, and gypsum. It is characterized by underground drainage systems with sinkholes and caves.
- **Conditions for development of Karst topography:**
    1. Limestone must be massive, thickly bedded.
    2. Limestones should not be porous wherein permeability is largely controlled by joints and not by mass of the limestone. If they are porous then water will pass through the rock mass and the whole rock will become weak and will collapse.
    3. The carbonate rocks should be very close to the ground surface so that rainwater may easily and quickly infiltrate into the beds of limestone and may corrode the rocks to form solutional landforms.
    4. The limestones should be highly folded, fractured or faulted.
    5. There should be enough rainfall so that the required amount of water is available to dissolve carbonate rocks.

**Q.16) With respect to the hypothesis of Sea-Floor spreading, consider the following statements.**

1. Occurrence of shallow-foci earthquakes along mid-oceanic ridges.
2. Similar magnetic properties of rocks equidistant on either side of the crest of the mid-oceanic ridges.

**Which among the above statements is/are correct?**

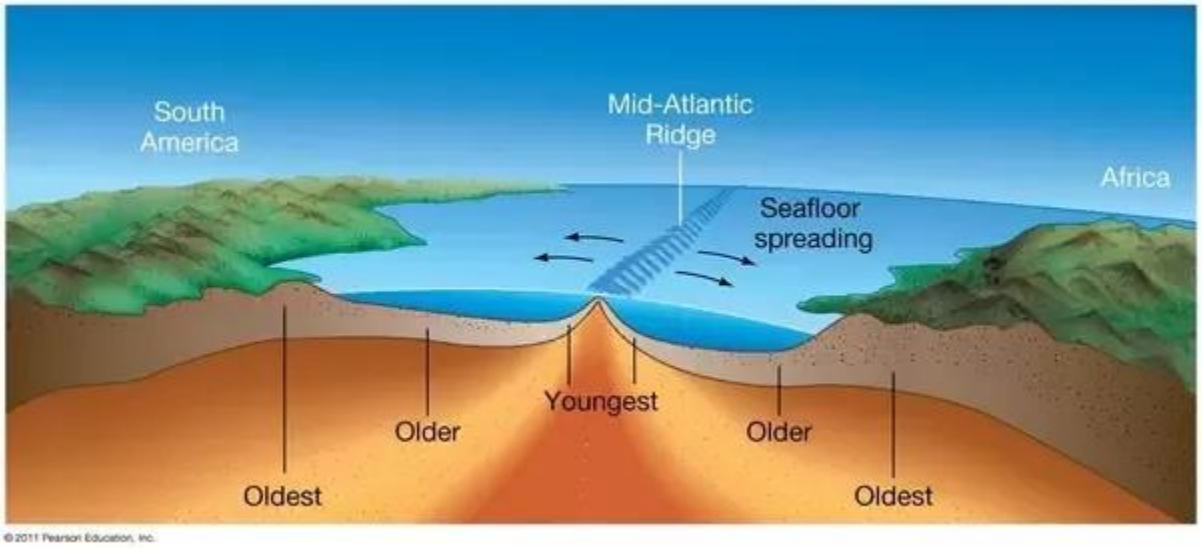
a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 nor 2

**Q.16) Solution (c)**

**Basic Information:**

**Sea-Floor Spreading:**

- Seafloor spreading is a process that occurs at mid-ocean ridges, where new oceanic crust is formed through volcanic activity and then gradually moves away from the ridge.
- Seafloor spreading helps explain continental drift in the theory of plate tectonics.
- The hypothesis of seafloor spreading was forwarded by Harry Hammond Hess.
- The ocean floor that gets pushed due to volcanic eruptions at the crest, sinks down at the oceanic trenches and gets consumed. Hence the oceanic crust is simultaneously formed at the mid-oceanic ridge and consumed at oceanic trenches. Thus, ocean crust rocks are much younger than the continental rocks.




**Statement Analysis:**

| Statement 1 | Statement 2 |
|---|---|
| **Correct** | **Correct** |
| In the mid-oceanic ridge areas, the earthquake foci have shallow depths. | According to the hypothesis of seafloor spreading, constant eruptions at the crest of oceanic ridges caused the rupture of the oceanic crust and the new lava wedges into it, pushing the oceanic crust on either side. Thus the rocks equidistant on either side of the crest of mid-oceanic ridges show remarkable similarities in terms of the period |

| | |
|---|---|
| | of formation, chemical compositions and magnetic properties. |

**Q.17) With respect to the intrusive landforms consider the following**

1. Sills: Horizontal intrusion of magma.
2. Phacolith: Dome-shaped mass of igneous rocks.
3. Laccolith: lens shaped mass of igneous rocks.
4. Lopolith: Saucer shape intrusion of magma.

**Which of the above landforms are correctly defined?**

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

**Q.17) Solution (b)**

**Basic Information:**

- Volcanic landforms are divided into extrusive and intrusive landforms based on whether magma cools within the crust or above the crust.
- Magma while thrusting its way up to the surface may cool and solidify within the crust as plutonic rocks resulting in intrusive landforms.
- Magma that reach the surface and solidify form the extrusive landforms.

**Intrusive landforms:**

- **Sills:** When an intrusion of molten magma is made horizontally along the bedding planes of sedimentary rocks, the resulting intrusion is called a Sill.
- **Dyke:** Magma injected vertically are called Dykes.
- **Laccolith:** It is a large blister with a dome-shaped upper surface and a level base fed by the pipe like conduit from below.
- **Lopolith**: It is saucer shaped intrusion.
- **Phacolith**: It is a lens-shaped intrusion.

**Q.18) What does the term 'Nappe' refer to?**

a) A recumbent fold with one of its limbs perpendicular to the other.
b) A monoclinal fold with both limbs at gentle slope.
c) A symmetrical fold with both limbs inclined to each other.
d) Sheet of rock that has been moved a distance of about 2 km or more from its original position by faulting or folding.

**Q.18) Solution (d)**

**Basic Information:**

- In geomorphology Nappe refers to a large body or sheet of rock that has been moved a distance of about 2 km or more from its original position by faulting or folding.
- It is the result of complex folding mechanisms caused by intense horizontal movement and resulting compressive force.
- A nappe may be the hanging wall of a low-angle thrust fault (a fracture in the rocks of the Earth's crust caused by contraction), or it may be a large recumbent fold (i.e., an undulation in the stratified rocks of the Earth's crust having an essentially horizontal axial plane).
- Both processes position older rocks over younger rocks.
- In places, erosion may cut into the nappe so deeply that a circular or elliptical patch of the younger, underlying rock is exposed and completely surrounded by the older rock; this patch is called a fenster, or window.

**Q.19) Consider the following statements with respect to fold mountains.**

1. They are the youngest mountains on the earth's surface.
2. These are formed due to the folding of the igneous rocks only.

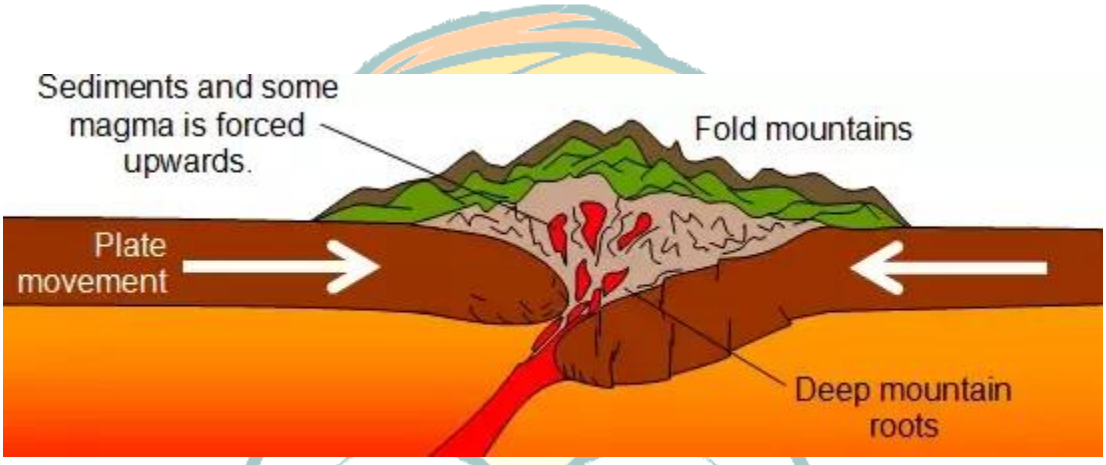
**Which among the above statement is/are correct?**

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

**Q.19) Solution (a)**

**Basic Information:**

- Fold mountains are formed due to folding of crustal rocks by compressive forces generated by endogenetic forces coming from within the earth.
- These are the youngest, highest and extensive mountains of the world and are found in all continents.
- Examples include Rockies, Andes, Alps, Himalayas etc.
- On the basis of the nature of folds they are categorised into simple folded mountains (folds are arranged in simple wave-like pattern) and complex folded mountains (they have complex structure of intensely compresses folds).




**Statement analysis:**

| Statement 1 | Statement 2 |
|---|---|
| **Correct** | **Incorrect** |
| Fold mountains are the youngest compared to block mountains on the earth's surface. | The lithological characteristics of folded mountains reveal that these have been formed due to folding of **sedimentary and Igneosu rocks** by strong compressive forces. Folding is rarely seen in metamorphic rocks. |

**Q.20) 'Exfoliation' is a type of**

a) Mechanical weathering caused by fluvial processes.
b) Chemical weathering caused by glacial processes.
c) Mechanical weathering caused by unloading and expansion.
d) Chemical weathering caused due to acid rain.

**Q.20) Solution (c)**

**Basic Information:**

- Weathering is the breaking down of rocks, soil, and minerals as well as wood and artificial materials through contact with the Earth's atmosphere, water, and biological organisms. Weathering occurs in situ (on site), that is, in the same place, with little or no movement.
- There are two types of weathering
    1. Physical or mechanical weathering.
    2. Chemical weathering.

**Exfoliation:**

- It is a form of mechanical weathering. Also known as onion weathering.
- It refers to the peeling off concentric shells of rocks due to combined actions of heat and wind in the arid and semi-arid regions and monsoon lands.
- It is more common over crystalline rocks.
- When a mass of rock is exposed by weathering and removal of the overlying rock, there is a decrease in the confining pressure on the rock, and the rock expands. This unloading promotes cracking of the rock, known as exfoliation.
- The outer shells of the rocks become loose due to alternate expansion and contraction due to high temperature during day time and comparatively low temperature during night time respectively and these loosened shells are removed (peeled off) by strong winds.
- Example: Kanke dome near Ranchi exhibits the best example of such a weathering process.

**Q.21) The Shillong Declaration, recently seen in the news is associated with which of the following?**

a) Protection of Biodiversity of North East India
b) E-governance
c) Artificial Intelligence
d) North East Insurgency

**Q.21) Solution (b)**

- 22nd **National Conference on e-Governance 2019 held in Shillong** led to this declaration.
- Theme of Conference: Digital India: Success to Excellence.
- Key highlights of Shillong declaration:
  - Promote timely implementation of **India Enterprise Architecture (IndEA**).
  - Consolidate the plethora of successful State level e-Governance projects with a focus to replicate them as a common application software.
  - Take steps to further improve connectivity in North Eastern States
  - Explore the possibility for opening an electronics skill center in Shillong.

**Q.22) In which of the following States is 'Gandhamardhan Hills' located?**

a) Maharashtra
b) Himachal Pradesh
c) Sikkim
d) Odisha

**Q.22) Solution (d)**

- In August, heavy rain triggered a major **landslide** near Harishankar Temple, situated on the southern slopes of the **Gandhamardhan Hills** in western **Odisha**.
- **Gandhamardhan Hills** is known for medicinal plants and **Bauxite reserve**.
- BSI has reported the existence of 220 plant species of medicinal value.

**Q.23) Consider the following statements about BPaL Regimen:**

1. It is a combination of four drugs for treating drug-resistant tuberculosis (TB).
2. This regimen reduces the total time of treatment with increase in per day dosage or pills.

**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.23) Solution (d)**

| Statement 1 | Statement 2 |
|---|---|
| **Incorrect** | **Incorrect** |
| **The three-drug regimen** consists of **Bedaquiline, Pretomanid and Linezolid**, collectively known as the **BPaL regimen**. U.S. Food & Drug Administration (FDA) has approved a new drug Pretomanid for treating drug-resistant tuberculosis i.e. multidrug-resistant TB (MDR-TB) and extensively drug-resistant TB (XDR-TB). | Before the FDA approved this combination therapy, the most common treatment for this type of tuberculosis required patients to take around 30 pills a day plus sometimes daily injections for at least 18 months. **Unlike 18-24 months** needed to treat highly-resistant TB using nearly 20 drugs, **the BPaL regimen takes just six months with reduced dose of 5 pills/day.** |

**Q.24) 'Loki's Castle' is a field of active hydrothermal vents in the**

a) Atlantic ocean
b) Pacific ocean
c) Indian ocean
d) Southern Ocean

**Q.24) Solution (a)**

- Some scientists suggested a kind of archaea, Asgard archaea, may have been interacted with bacteria, resulting in the first eukaryotes.
- DNA analysis of samples of mud from the deep ocean showed evidence of both archaea and eukaryote-like genomes.
- The samples were given the name **Lokiarchaea**, because they were **uncovered from an area close to Loki's Castle**, a deep-sea hydrothermal vent.
- Now team of researchers in Japan has succeeded in cultivating samples of Lokiarchaeain a special tank in their lab.
- **Loki's Castle** is a field of five **active hydrothermal vents in the mid-Atlantic Ocean**, located at 73 degrees north on the Mid-Atlantic Ridge between Greenland and Norway at a depth of 2,352 metres.

**Q.25) Consider the following pairs:**

| *Craft* | *Heritage of* |
|---|---|
| 1. Kandangi saree | Kerala |
| 2. Kondapalli Toys | Tamil Nadu |
| 3. Tawlhlohpuan | Mizoram |

**Which of the pairs given above are *incorrectly* matched?**

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

**Q.25) Solution (a)**

| **Pair 1** | **Pair 2** | **Pair 3** |
|---|---|---|
| **Incorrect** | **Incorrect** | **Correct** |
| **Kandangi** is a type of saree made from silk threads in **Tamil Nadu**. Traditionally, Chettinad and Koorainad are two types of Kandangi saree native in Tamil Nadu. | **Kondapalli Toys** are cultural icons of **Andhra Pradesh**. They are made from soft wood known as TellaPoniki which are found in nearby Kondapalli Hills. | **Tawlhlohpuan** is a medium to heavy, compactly woven, good quality fabric from **Mizoram** and is known for warp yarns, warping, weaving & intricate designs that are made by hand. |

**Q.26) Consider the following statements with respect to 'Equalisation Levy'.**

1. It is aimed at taxing business-to-business transactions in the digital advertising space i.e. the income accruing to foreign ecommerce companies from within India.
2. It is an indirect tax which is withheld at the time of payment by the recipient of the services.

**Select the correct statements**

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

**Q.26) Solution (a)**

The equalisation levy of 6% is aimed at taxing business-to-business transactions in the digital advertising space - that is, the income accruing to foreign ecommerce companies from within India. It's a direct tax which is withheld at the time of payment by the recipient of the services.

The equalisation levy is payable on any specified service received or receivable by a non-resident, though it should not be charged where:

- the non-resident providing the specified service has a permanent establishment in India and the specified service is effectively connected with such permanent establishment
- the annual accrued payments made to one single service provider do not exceed Rs. 100,000 in one financial year
- The service is not for business purposes.

**Q.27) Which of the following statements is/are correct?**

1. The Supreme Court (Number of Judges) Act, 1956 originally provided for a maximum of 10 judges including the Chief Justice of India (CJI)
2. At present, the Supreme Court is working with its full sanctioned strength of 31, including the CJI.

**Select the correct statements**

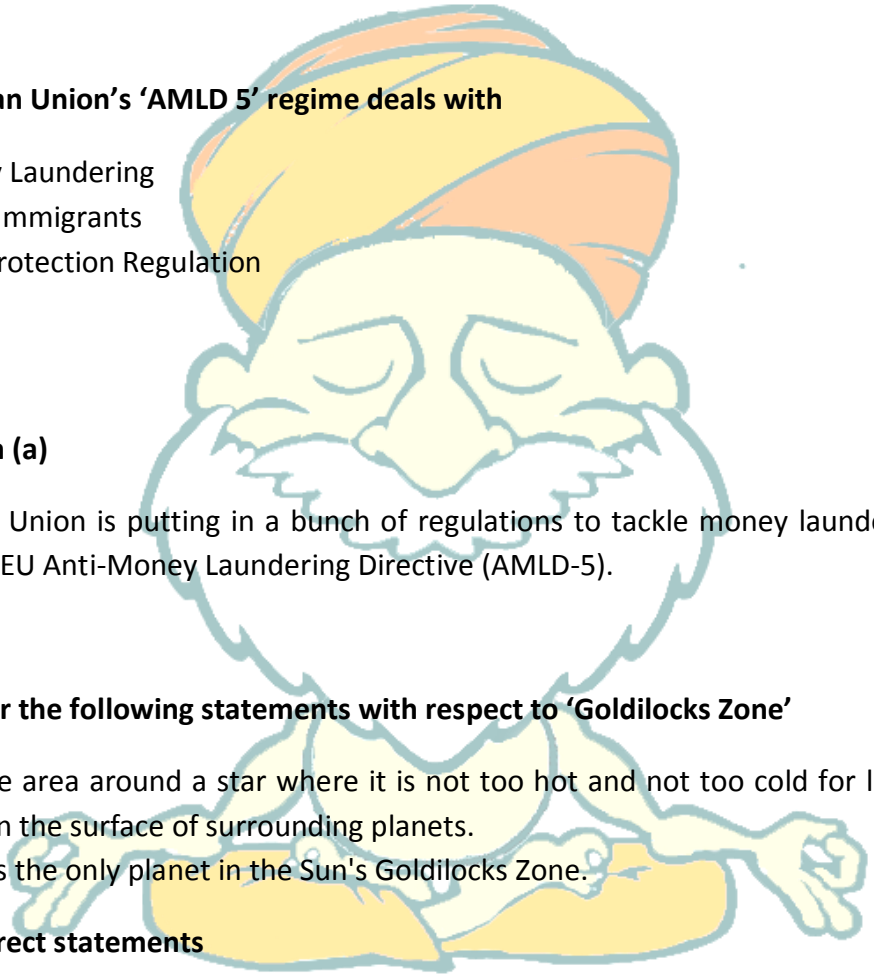
a) 1 Only
b) 2 Only
c) Both 1 and 2
d) Neither 1 nor 2

**Q.27) Solution (d)**

**The Supreme Court (Number of Judges) Act, 1956**

- It originally provided for a maximum of ten judges (excluding the CJI).
- This number was increased to 13 by the Supreme Court (Number of Judges) Amendment Act, 1960, and to 17 in 1977.

- The working strength of the Supreme Court was, however, restricted to 15 judges by the Cabinet (excluding the CJI) till the end of 1979. But the restriction was withdrawn at the request of the chief justice of India.
- In 1986, the strength of the top court was increased to 25, excluding the CJI. Subsequently, the Supreme Court (Number of Judges) Amendment Act, 2009 further augmented the strength of the court from 25 to 30.
- With the increase in the number of judges (2019) in the apex court to the total sanctioned strength of 34, including the CJI.



**Q.28) European Union's 'AMLD 5' regime deals with**

a) Money Laundering
b) Illegal Immigrants
c) Data Protection Regulation
d) Brexit

**Q.28) Solution (a)**

The European Union is putting in a bunch of regulations to tackle money laundering, and it is called the 5th EU Anti-Money Laundering Directive (AMLD-5).

**Q.29) Consider the following statements with respect to 'Goldilocks Zone'**

1. It is the area around a star where it is not too hot and not too cold for liquid water to exist on the surface of surrounding planets.
2. Earth is the only planet in the Sun's Goldilocks Zone.

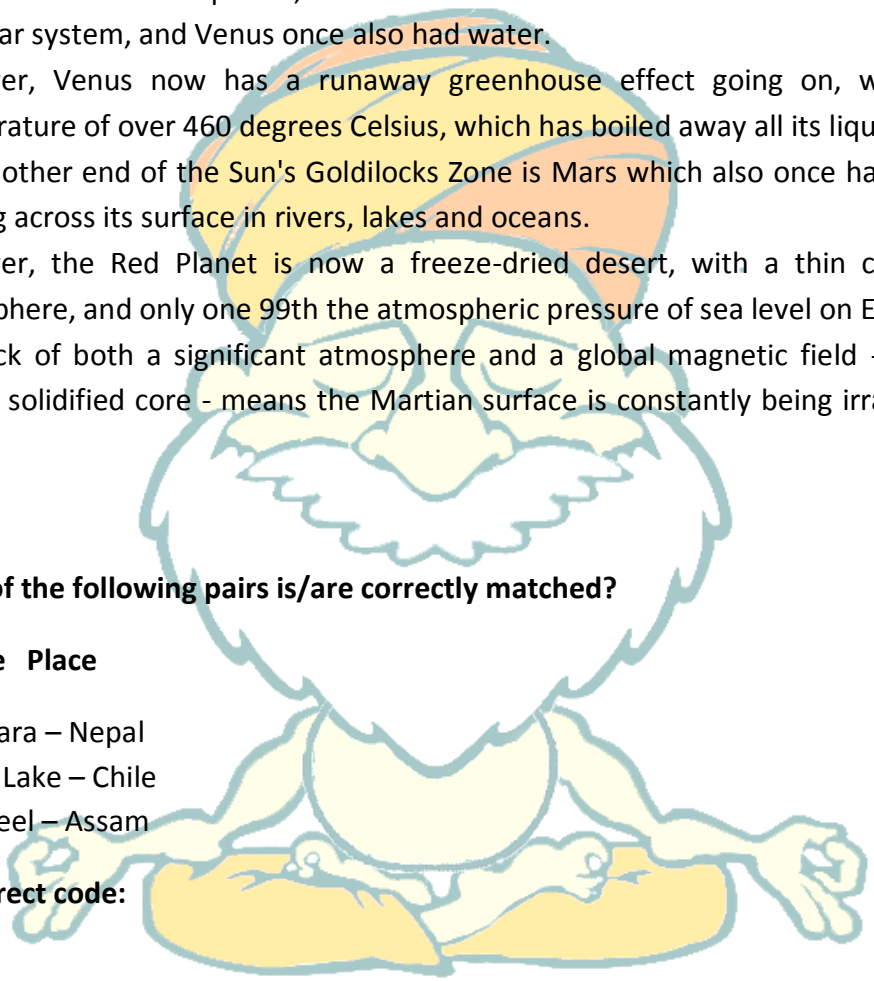
**Select the correct statements**

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

**Q.29) Solution (a)**

**The Goldilocks Zone**

- It refers to the habitable zone around a star where the temperature is just right - not too hot and not too cold - for liquid water to exist on a planet.
- Just because a planet or moon is in the Goldilocks Zone of a star, doesn't mean it's going to have life or even liquid water.
- After all, Earth isn't the only planet in the Sun's Goldilocks Zone - Venus and Mars are also in this habitable zone, but aren't currently habitable.
- Venus is Earth's sister planet, both are about the same size and in the same region of the solar system, and Venus once also had water.
- However, Venus now has a runaway greenhouse effect going on, with a surface temperature of over 460 degrees Celsius, which has boiled away all its liquid water.
- At the other end of the Sun's Goldilocks Zone is Mars which also once had liquid water flowing across its surface in rivers, lakes and oceans.
- However, the Red Planet is now a freeze-dried desert, with a thin carbon dioxide atmosphere, and only one 99th the atmospheric pressure of sea level on Earth.
- The lack of both a significant atmosphere and a global magnetic field - thanks to its mostly solidified core - means the Martian surface is constantly being irradiated by the Sun.



**Q.30) Which of the following pairs is/are correctly matched?**

**Lake Place**

1. Kajin Sara – Nepal
2. Tilicho Lake – Chile
3. Gogabeel – Assam

**Select the correct code:**

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

**Q.30) Solution (a)**

Kajin Sara – Nepal

Tilicho Lake – Nepal

Gogabeel – Bihar