



IASBABA

One Stop Destination for UPSC/IAS Preparation

60 Days Final Compilation



DELHI

BANGALORE

5B, Pusa Road, Karol
Bagh, New Delhi -110005.
Landmark: Just 50m from
Karol Bagh Metro Station,
GATE No. 8 (Next to
Croma Store)
Ph:0114167500

#1737/37, MRCR Layout, Vijaynagar
Service Road, Vijaynagar, Bangalore
560040. PH: 09035077800 /
7353277800

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.

Primary waves:

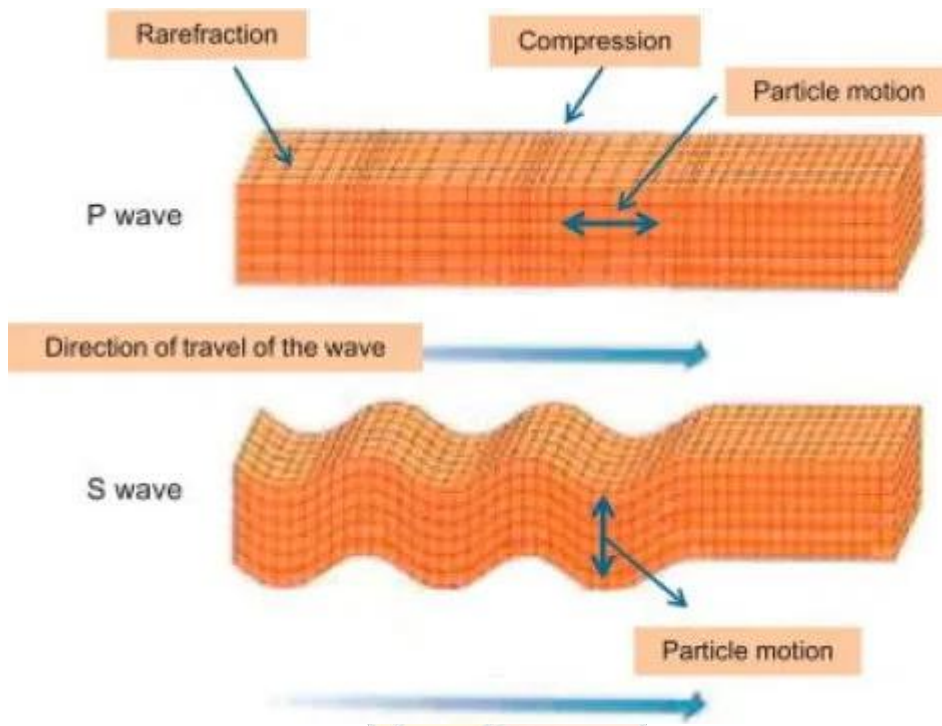
- They are called longitudinal waves or compressional waves and are analogous to sound waves where particles move to and fro in the line of propagation.
- They travel both in solid and liquid medium.

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.

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.

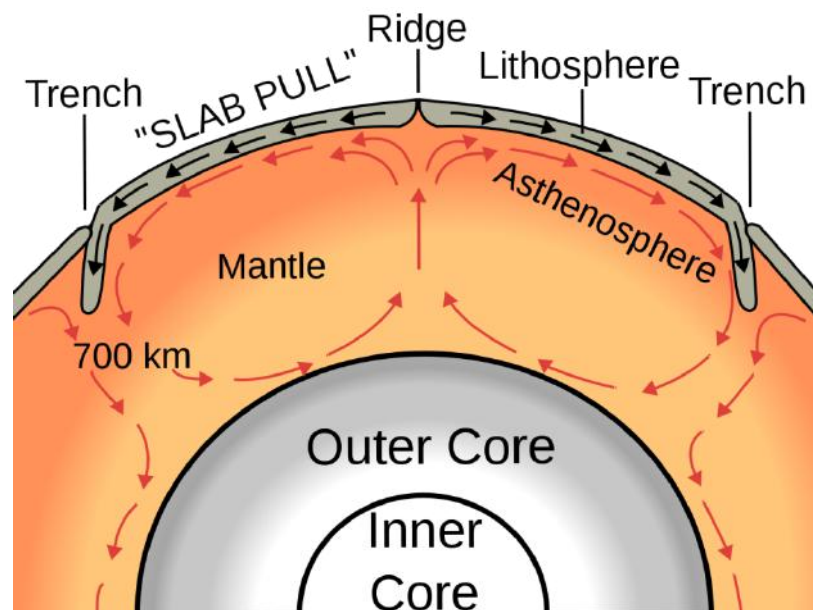


Image: Convective cell

- 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:

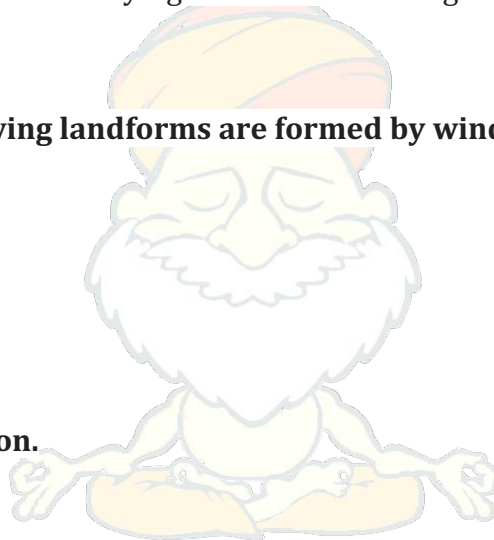
- The term "Isostasy" is derived from "Isostasios", a word of Greek language meaning the state of being in balance.
- Different relief features of varying magnitude for example mountains, plateaus, plains, lakes etc standing on the earth's surface are probably balanced by certain definite principal on 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,
	Blowout, mushroom rock, Yardang, Driekanter,	Sand dunes, siefs, Nephka,

Aeolian/Wind	Demoiselles, zeugen	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 Nevis, Mt Kulal, Mt. Buninyong.

Q.7) “Gutenberg Discontinuity” in the earth’s interior is found between which layers?

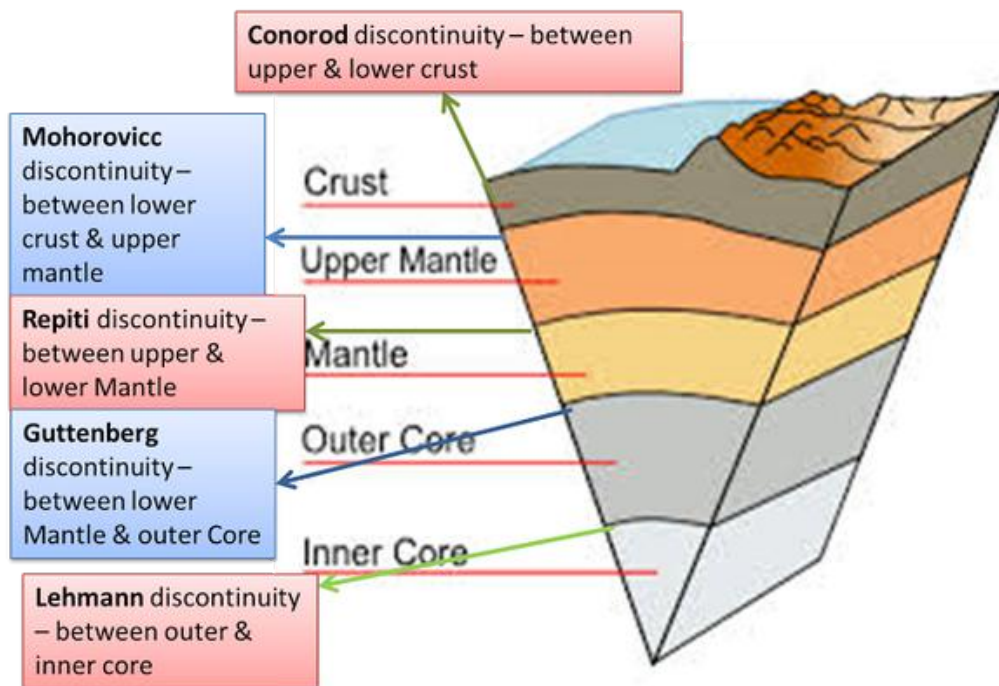
- a) Between mantle and core.
- b) Between upper and lower crust.
- c) Between upper mantle and lower mantle.
- d) Between crust and mantle.

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'?

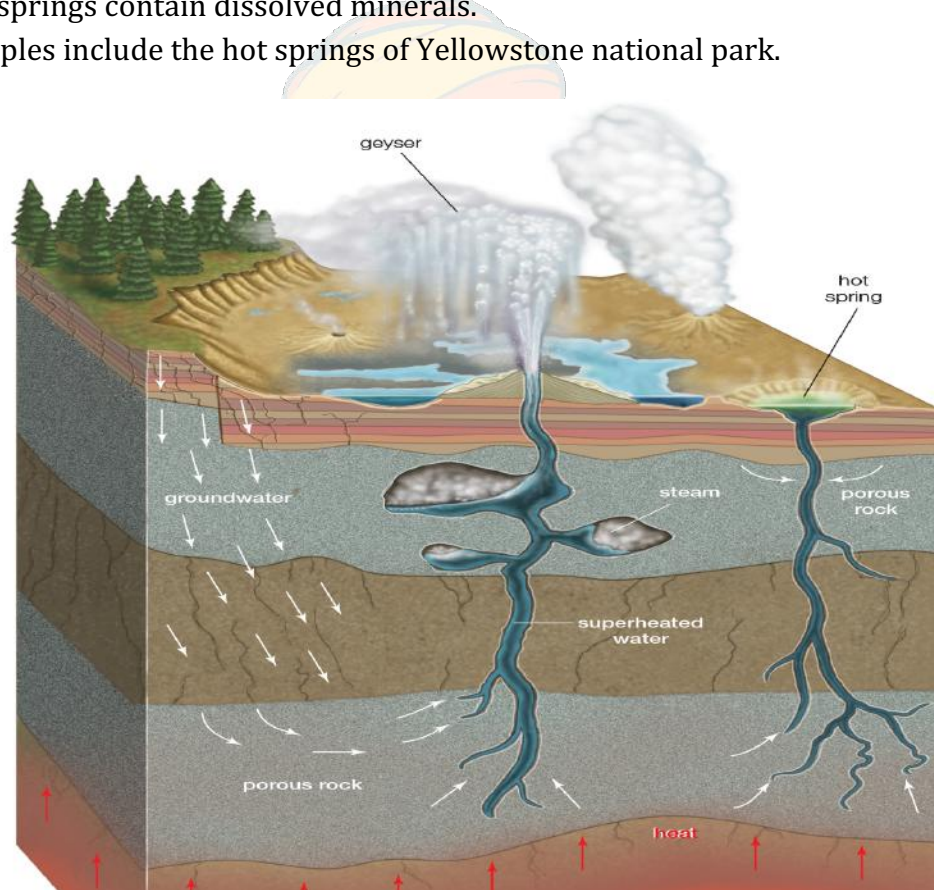
- a) Geysers spout hot water without any explosion while Hot springs spout hot water explosively.
- b) Geysers are found in any part of the world while hot springs are specific to volcanic areas.
- c) Geysers spout hot water explosively while hot springs spout hot water without any explosion.
- d) Geysers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

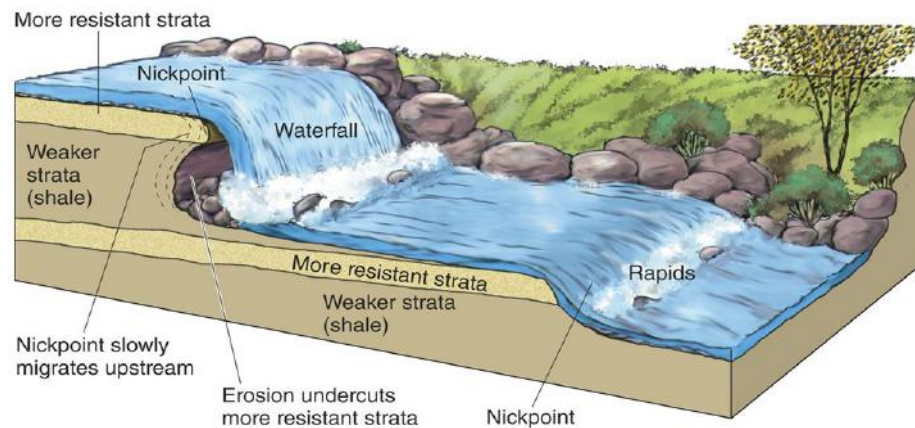
Q.11) Solution (c)

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.

Nickpoint



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.

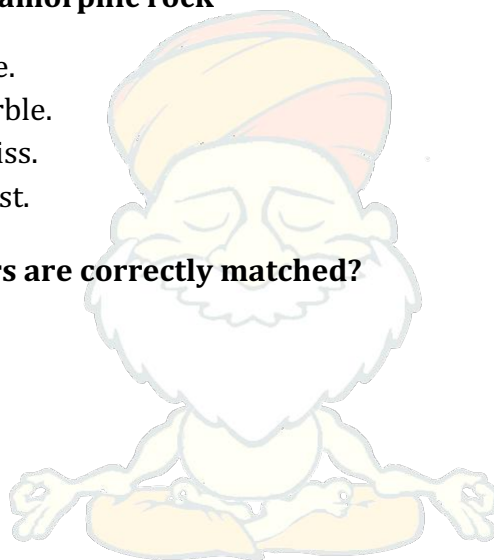
Q.13) With respect to the metamorphic rocks consider the following pairs:

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?

- These are inland drainage basins which do not drain into the ocean.
- These are drainage basins that ultimately drain into the ocean.
- These are drainage basins having features of erosional surfaces.
- 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?

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

Choose the correct option

- 1, 3 and 4
- 1, 2 and 4
- 1, 2 and 3
- All of the above

Q.15) Solution (d)

Basic Information:

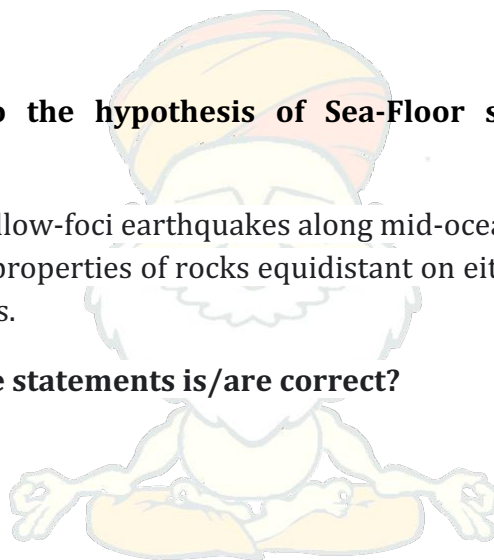
- Karst is a topography formed from the dissolution of soluble rocks such as limestone, dolomite, and gypsum. It is characterized by underground drainage systems with sinkholes and caves.
- **Conditions for development of Karst topography:**
 1. Limestone must be massive, thickly bedded.
 2. Limestones 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



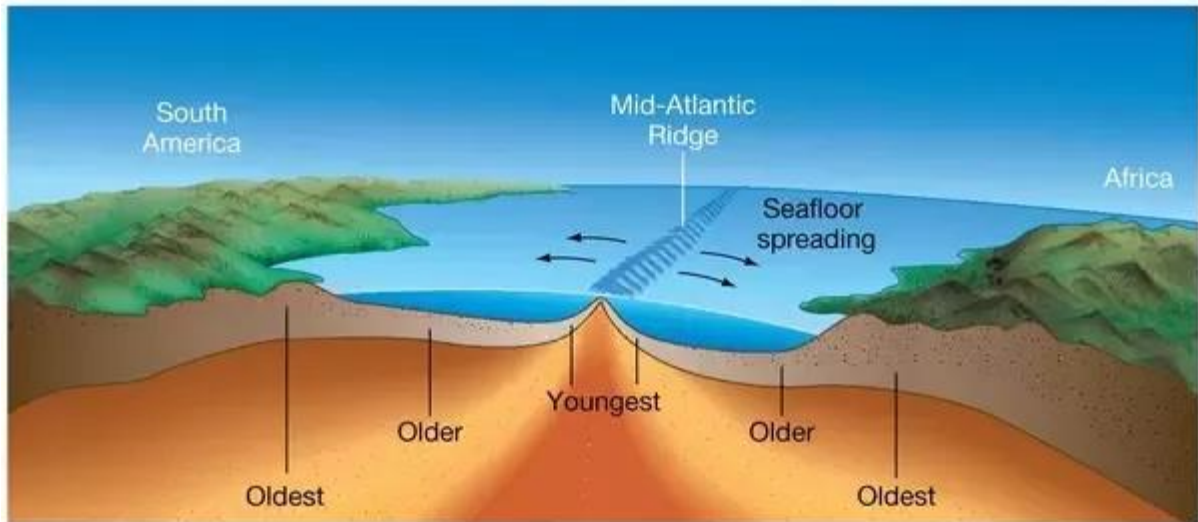
Q.16) Solution (c)

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
<p>In the mid-oceanic ridge areas, the earthquake foci have shallow depths.</p>	<p>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.</p>

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 monoclinial 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.

Prelims 2020 Exclusive :Current Affairs Classes

Beat the Heat of Current Affairs Prelims 2020 in 12 Uber Cool Sessions by Tauseef Ahmad (One of the Founders of IASbaba)

MOST PROBABLE PRELIMS
CURRENT AFFAIRS TOPICS
FROM PAST 1.5 YEARS WILL
BE COVERED IN 12 SESSIONS



CRISP AND ORGANISED
NOTES/CONTENT TO MAKE
YOUR REVISION EASIER



Starts 15th April

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.

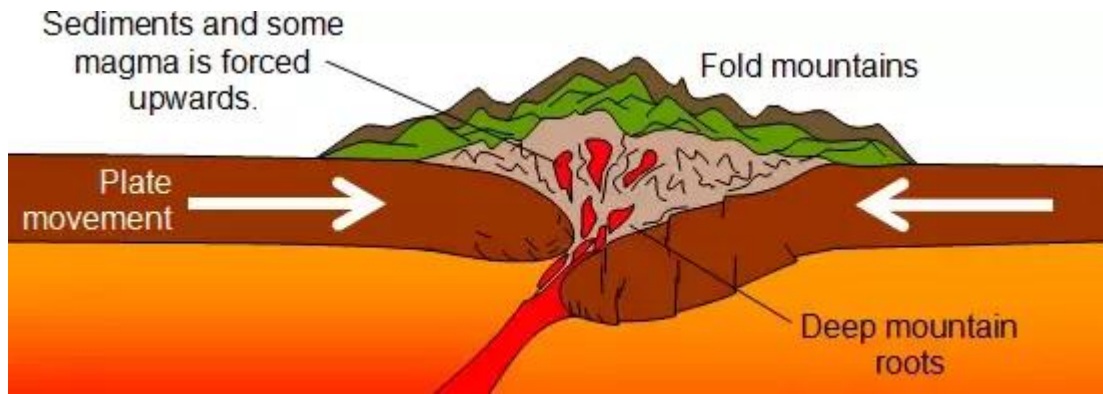
Which among the above statement is/are correct?

- 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 Igneousu rocks by strong compressive forces. Folding is rarely seen in metamorphic rocks.

Q.20) 'Exfoliation' is a type of

- Mechanical weathering caused by fluvial processes.
- Chemical weathering caused by glacial processes.
- Mechanical weathering caused by unloading and expansion.
- 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
 - Physical or mechanical weathering.
 - 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) With respect to the geological history of India consider the following statements.

1. Over two-thirds of the peninsular surface is covered by Archaean rock Gneiss.
2. Gondwana rocks contain about 98 percent of coal reserves of India.

Which of the above statements are correct?

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

Q.21) Solution (c)

Basic Information:

- Geologically Indian rock system can be divided into four major divisions.
 1. The Archaean Rock System (about 4000-1000 million years ago)
 2. The Purana Rock System (1400-600 million year ago)
 3. The Dravidian Rock System (600-300 million years ago)
 4. The Aryan Rock System (300 million years ago to recent times)
- The Archaean system is the oldest and they include two groups 1. Archaean group of Gneiss and Schists and 2. Dharwar system.
- The Purana system includes two major groups 1. The Cuddapah system and 2. The Vindhyan system.
- The Dravidian system is mostly found in extra-peninsular regions and they consist of abundant fossils. The rocks of cambrian, Ordovician, Silurian, Devonian and Carboniferous periods are included in the Dravidian system.

- The Aryan rock system is the newest and includes Gondwana rock system, Triassic system, Jurassic system, tertiary system (Eocene, Oligocene, Miocene and Pleistocene)) and Cretaceous system. The Deccan Trap of the peninsular block belongs to this period.

Statement Analysis:

Statement 1	Statement 2
Correct	Correct
<p>The Archaean system of Gneiss covers about two-thirds of the peninsular block. They are azoic and highly crystalline in structure.</p>	<p>The Gondwana system belongs to the Aryan rock system. It consists of sandstones with some shales and clays. They are continental origin, fluvial and lacustrine deposits laid down in geosynclinal troughs on ancient plateau surface. The main areas of these rocks are in the peninsula along the Damodar valley in Jharkhand, along Mahanadi valley in Chhattisgarh and Orissa, in southern parts of Madhyapradesh and a series of troughs along the Godavari.</p> <p>Economically they are significant because over 98 percent of the coal reserves of India belong to this rock system.</p>

Q.22) Which of the following are categorised as glacial lakes in India?

1. Roopkund
2. Chandra tal
3. Surajkund
4. Tsongmo
5. Wular.

Choose the correct option:

- a) 1, 2, 4 and 5
- b) 1, 2 and 4
- c) 1, 2, 3 and 5

d) All of the Above.

Q.22) Solution (b)

Basic Information:

List of Glacial Lakes in India:

Lake	State/region
Roopkund	Uttarakhand
Chandra Tal	Himachal Pradesh
Tsongmo	Sikkim
Homkund	Uttarakhand
Kedartal	Uttarakhand
Satopanth Tal	Uttarakhand
Suraj Tal	Himachal Pradesh
Kailash Kund	Manasarovar region.
Gurudongmar	Sikkim
Sheshnag	Kashmir
Kaunsarnag	Kashmir

Q.23) Which of the following evidence shows that the Himalayas are still rising?

1. Fossil formations of the Shivalik hills are also found in Tibetan plateau.
2. Dessication of lakes of Tibet.
3. Frequent occurrence of earthquakes in Himalayas.
4. Terraces found at the valley sides in the valley regions of the Himalayas.

Choose the correct option:

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

Q.23) Solution (d)**Basic Information:**

- Many geologists have opined that the process of upliftment of the Himalayas is not yet complete and it is still under process. Following evidence can be cited to prove that Himalayas are still rising.

1. Fossil Formations:

Some fossil formations found in the Shivalik hills and the Tibet plateau are similar indicating similar climate conditions in the past in both areas. Tibetan plateau has since risen to its present elevation.

2. Dessication of lakes:

Dessication of lakes has been observed within the recent past. Surrounding these lakes, the sand and gravel terraces at higher levels above the present water level proves that water stood at much higher level till recent times.

3. Occurrence of earthquakes:

Indicates that Himalayas have not yet attained Isostatic Equilibrium and they still continue to rise.

4. Youthful stage of Himalayan rivers:

Himalayan rivers are still in their youthful stage with proof of rejuvenation.

5. Terraces on valley sides:

Terraces found at the valley sides suggests rejuvenation of the valley region due to the uplift.

Q.24) Consider the following statements.

- 1. Dafla, Miri, Abor and Mishmi hills in Arunachal Pradesh are part of the Shivalik range.
- 2. 'Duns' are the seasonal streams found on the Southern side of the Shivaliks.

Which of the above statements is/are correct?

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) None of the above.

Q.24) Solution (a)

Basic Information:

- The Shivalik comprises the outermost range of the Himalayas and is called the outer Himalayas.
- It assumes a Hogback appearance due to its steep slopes.
- It runs almost parallel to the Lesser Himalayas for a distance of about 2400 kms from the Potwar Plateau to the Brahmaputra valley.
- The width of the Shivaliks varies from 50 kms in Himachal Pradesh to less than 15 kms in Arunachal Pradesh.
- The Shivaliks have been formed of sands, gravels and conglomerates of the Mid-Pleistocene period.

Statement Analysis:

Statement 1	Statement 2
Correct	Incorrect
<p>Shivaliks are known by different names in different areas. They are called</p> <ol style="list-style-type: none"> 1. Jammu Hills in Jammu 2. Dafla, Miri, Abor and Mishmi hills in Arunachal Pradesh. 3. Dhang range 4. Dundwa range of Uttarakhand. 5. Chiria Ghat hills of Nepal. 	<p>The southern slopes of the Shivaliks are completely devoid of the forest cover particularly in Punjab and Himachal Pradesh. These are highly dissected by several seasonal streams locally called 'Chos'.</p> <p>'Duns' or 'Duars' are plain areas formed due to the draining away of the lakes in the Himalayan regions. This occurs because the rivers cut their way through the ranges and drain the lakes formed earlier. The Duns are fertile areas.</p>

Q.25) Which of the following is/are correctly matched with respect to the location of the passes of the Himalayas?

<u>Pass</u>	<u>State</u>
1. Aghil Pass	Jammu and Kashmir
2. Chang la	Himachal Pradesh.
3. Bom Di la	Sikkim
4. Shipki la	Himachal Pradesh

Choose the correct option:

- 1 and 4 only
- 1 and 3 only
- 1, 3 and 4 only
- All of the above.

Q.25) Solution (a)

Basic Information:

Name of the state	Name of the passes
Jammu Kashmir,	Mintaka Pass, Parpik Pass, Khunjerab pass, Aghil Pass, Banihal pass, Chang La, Khardung La, Lanak La, Pir panjal, Qara Tag La, Imis La, Pensi La, Zoji La
Himachal Pradesh	Bara Lacha La, Debsa Pass, Rohtang pass, Shipki la,
Uttarakhand	Lipu Lekh, Mana Pass, Mangsha Dhura, Niti Pass, Muling La.
Sikkim	Nathu la, Jelep la.
Arunachal Pradesh	Bom Di La, Dihang Pass, Yonggyap Pass, Dipher Pass, Kumjawng Pass, Hpungan Pass, Chankan Pass

Q.26) What does the term ‘Tarai’ with respect to physiography of Northern plains of India refer to?

- Coarse pebble belt along the foothills of the Shivaliks.
- A marshy tract south of the Bhabar region in the Northern plains.
- Old alluvium belt north of Bhangar region in Northern plains.
- Newer alluvium belt north of Bhangar region in Northern Plains.

Q.26) Solution (b)

Basic Information:

- The Tarai is a lowland region in northern India and southern Nepal that lies south of the outer foothills of the Himalayas, the Sivalik Hills, and north of the Indo-Gangetic Plain.
- This lowland belt is characterised by tall grasslands, scrub savannah, sal forests and clay rich swamps.
- It is a 15-30 km wide marshy tract running parallel to the south of the Bhabar region in the Northern plains.
- Rivers reemerge in this region which makes the area wet.
- Most of the area in Punjab, Uttarpradesh and Uttarakhand is converted for agriculture purposes.

ONE STOP DESTINATION FOR ALL YOUR CURRENT AFFAIRS NEEDS

SUBSCRIBE NOW

UPDATED ON A DAILY BASIS

PRECISE AND CRISP CURRENT AFFAIRS NOTES

NO NEED TO MAKE NOTES FOR CURRENT AFFAIRS

ONE OF ITS KIND COMPENDIUM OF CURRENT AFFAIRS

BABAPEDIA

- The most organized Platform for Current Affairs Preparation.
- Highest Hit Ratio in Prelims (Current Affairs)
- Highly Recommended by UPSC Toppers - Rank 4, 6, 9, 14, etc.

Q.27) With respect to the ‘Doabs’ of the Punjab Plains, which of the following are correctly matched?

<u>Doab</u>	<u>Location</u>
1. Chaj Doab	Between Chenab and Jhelum rivers.
2. Sind Sagar Doab	Between Jhelum-Chenab and the Indus rivers.
3. Rachna Doab	Between Ravi and Chenab rivers.
4. Bari Boab	Between Beas and the Ravi rivers.

Choose the correct option:

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

Q.27) Solution (d)

Basic Information:

- The land between two rivers is known as 'Doabs'.
- They are predominantly present in the Punjab Plains in Northern India.

Doab	Between the rivers
Bist-Jalandhar Doab	Between Beas and the Sutlej
Bari Doab	Between Beas and the Ravi
Rachna Doab	Between the Ravi and the Chenab
Chaj Doab	Between the Chenab and the Jhelum
Sind Sagar Doab	Between the Jhelum-chenab and Indus.

Q.28) Consider the following Himalayan Mountains.

1. Nandadevi
2. Kamet
3. Makalu
4. Dhaulagiri

Arrange the above from west to east direction.

- a) 2-1-4-3
- b) 2-1-3-4
- c) 1-2-4-3
- d) 1-2-3-4

Q.28) Solution (a)

Explanation:

- From west to east direction Kamet comes first followed by Nandadevi, Dhaulagiri and Makalu.

Refer to the Map below.



Q.29) Consider the following statements

1. Karewas are thick deposits of glacial clay embedded with moraines.
2. Karewas are significant for the cultivation of Zafran.

Which of the above statements is/are correct?

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

Q.29) Solution (c)

Basic Information:

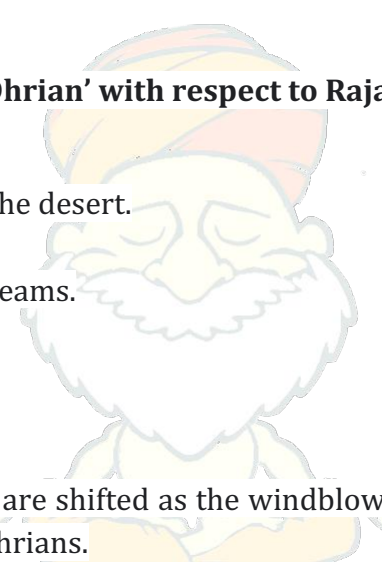
- Karewas are glacio-fluvial lacustrine deposits of the Pleistocene age.
- They are predominant in the Valley of Kashmir and the Bhadarwah of the Jammu division.
- Karewas were formed during the Pleistocene Period (1 million years ago), when the entire Valley of Kashmir was under water. Due to the rise of Pirpanjal, the drainage was impounded and a lake of about 5000 sq. km area was developed and thus a basin was formed. Subsequently, the lake was drained through

Bramulla gorge. The deposits left in the process are known as karewas. The thickness of karewas is about 1400 m.

Statement Analysis:

Statement 1	Statement 2
Correct	Correct
They are lacustrine deposits of glacial clay embedded with the moraines and other deposits.	The valley of Kashmir is known for Zafran cultivation (local name for Saffron) grown in the Karewa soils.

Q.30) What does the term 'Dhrian' with respect to Rajasthan deserts refer to?

- 
- a) Shifting sand dunes.
 - b) Oasis in the middle of the desert.
 - c) Dried up lakes.
 - d) Small Underground streams.

Q.30) Solution (a)

Basic Information:

- The sand dunes which are shifted as the windblown sand settlement in the Thar Desert are called the Dhrians.
- This is the local name which is given to the sand dunes of the Rajasthan Thar Desert.
- The depression of the sand which is blown from the Thar Desert of Rajasthan is called the Dhand.
- 'Rohi' is the fertile tract formed due to the drainage of the small streams originating from the Aravallis.

Q.31) Which of the following are categorised as saline lakes?

1. Sambhar lake.
2. Chilika lake.
3. Kolleru Lake.
4. Pulicat Lake.
5. Loktak lake

Choose the correct option:

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

Q.31) Solution (a)

Basic Information:

Saline Water Lakes in India	Freshwater Lakes in India
Sambhar lake, Chilika lake, Pulikat lake, Pongong Tso lake, Vembanad lake, Degana lake, Didwana lake, Kuchaman in Rajasthan etc	Kolleru lake, Loktak lake, Sardar Sarovar lake, Indira Sagar lake, Chandratat, suraj tal, Deepor Beel. Sheshnag, Tso Moriri etc.

Q.32) Consider the following statements with respect to the peninsular plateau of India.

1. 'Malnad' refers to the rolling plains with low granitic hills in southern India.
2. The topography of Ranchi Plateau in Chotanagpur division is marked by the rounded hills of massive granite.

Which of the above statements is/are correct?

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

Q.32) Solution (b)

Basic Information:

- The peninsular plateau constitutes the largest physiographic division of India facing Bay of Bengal in the east and the Arabian Sea in the west.
- It is like a tableland composed of the old crystalline, igneous and metamorphic rocks
- Its maximum length from Pachmarhi in the North to Cape Camorin in the South is 1600 Km and its maximum width from Sahyadri in the west to the Rajmahal Hills in the east is 1400 Kms.

- The plateau can be divided into five distinct subdivisions. 1. The Western Hills, 2. North Deccan Plateau, 3. South Deccan Plateau, 4. Eastern Plateau and 5. Eastern Hills.

Statement Analysis:

Statement 1	Statement 2
Incorrect	Correct
'Malnad' refers to the hilly area bordering the Sahyadri in the Karnataka plateau (South Deccan Plateau).	The Chotanagpur plateau in Eastern India consists of Ranchi Plateau and the Hazaribagh plateau.
'Maidan' refers to the rolling plains in north Karnataka consisting of the small granitic hills.	Ranchi plateau consists of the rounded granitic hills and slightly elevated terraces of older flood plains.

Q.33) Consider the following statements.

1. The Nilgiris join the Sahyadris near Gudalur.
2. The western ghats is separated from the main Sahyadri range by the palghat gap.

Which of the above statements is/are correct?

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

Q.33) Solution (c)

Basic Information:

- The Western Ghats or the Sahyadris form the western edge of the Deccan tableland.
- They run in north-south direction parallel and close to the Arabian Sea coast from Tapi valley (21 degree North latitude) to a little north of Kanniyakumari (11 degree North Latitude) for a distance of 1600 kms.

- Western ghats are steep sided, terraced, flat topped hills or cliffs presenting steppe topography.
- They are subdivided into 1. Northern Section (from 21-16 degree north latitude), 2. Middle Sahyadri (from 16 degree upto Nilgiris) and 3. The Southern section (From Palghat gap upto kanyakumari).

Statement Analysis:

Statement 1	Statement 2
Correct	Correct
Nilgiris join the Sahyadris near Gudalur. They rise abruptly to over 2000 mts and mark the junction of western ghats and eastern ghats.	Palghat gap presents a sudden break in the continuity of the Sahyadri range. The southern part of the western ghats is separated from the main sahyadris by the palghat gap. The gap is a rift valley formed by the subsidence of the land between two parallel fault lines.

Q.34) Brahmaputra is the longest river in North-eastern India. With reference to this river, consider the following statements.

1. It originates in the Chemayungdung glacier of the Kailash range near Manasarovar lake.
2. It enters India in the Indian state of Arunachal Pradesh where it is known as the Siang river.

Which of the above statements is/are correct?

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

Q.34) Solution (c)

Basic Information:

- The Brahmaputra, called Yarlung Tsangpo in Tibet, Siang River in Arunachal Pradesh and Luit in Assam is a trans-boundary river which flows through China, India and Bangladesh.

- It is the ninth largest river in the world by discharge, and the 15th longest.
- With its origin in the Manasarovar Lake region, near the Mount Kailash, located on the northern side of the Himalayas in Burang County of Tibet as the Yarlung Tsangpo River, it flows along southern Tibet to break through the Himalayas in great gorges (including the Yarlung Tsangpo Grand Canyon) and into Arunachal Pradesh.
- It flows southwest through the Assam Valley as Brahmaputra and south through Bangladesh as the Jamuna.
- In the vast Ganges Delta, it merges with the Padma, the popular name of the river Ganges in Bangladesh, and finally, after merging with Padma, it becomes the Meghna and from here, it flows as Meghna river before emptying into the Bay of Bengal.

Statement Analysis:

Statement 1	Statement 2
Correct	Correct
Brahmaputra originates from the Chemayungdung glacier	It enters India in the Indian State of Arunachal Pradesh and is called Dihang or Siang locally.

Q.35) Which of the following are the tributaries of the Godavari river?

1. Penganga
2. Ib
3. Wardha
4. Wainganga
5. Jonk

Choose the correct option:

- a) 1, 2 and 4
- b) 1, 3 and 4
- c) 1, 2, 3 and 4
- d) All of the Above.

Q.35) Solution (b)**Basic Information:**

Name of the river	Tributary
Ganga	Alaknanda, Pindar, Mandakini, Dhauliganga, Ramganga, Ghagra, Gandak, Kosi.
Yamuna	Chambal, Ken, Sind, Betwa.
Indus	Ravi, Chenab, Beas, Jhelum, Satluj.
Mahanadi	Ib, Mand, Hasdo, Sheonath, Ong, Jonk, Tel
Godavari	Manjra, Penganga, Wainganga, Wardha, Indravati, Sabari
Krishna	Koyna, Ghataprabha, Malaprabha, Bhima, Tungabhadra, Musi
Cauvery	Harangi, Hemavati, Shimsha, Arkavati, Lakshmana thirtha, Kabani
Narmada	Hiran, Barna, Kolar, Burher, Banjar, Shar, Tawa, Kundi
Tapi	Purna, Betul, Patki, Ganjal, Dathranj, Bokad, Amravati.

Q.36) Which fault separates Chota Nagpur Plateau from North Eastern Himalayan Mountains?

- a) Bhima fault
- b) Malda fault
- c) Meghalaya fault
- d) None of the above

Q.36) Solution (b)

Basic Information:

- In geology, a fault is a planar fracture or discontinuity in a volume of rock across which there has been significant displacement as a result of rock-mass movement. Large faults within the Earth's crust result from the action of plate tectonic forces, with the largest forming the boundaries between the plates.
- Bhima Fault is in the Bhima basin in the peninsular plateau. It has undergone significant seismic activities.
- Malda Fault is in West Bengal and separates Chotanagpur plateau from North Eastern Himalayan ranges.

Q.37) With respect to the west flowing rivers of India consider the following statements.

1. Although only about 3 percent of the arial extent of the basins of India is drained by these rivers, they contain about 18 percent of the country's water resources.
2. About six hundred small streams originate from the Western Ghats and flow into the Arabian sea.

Which of the above statements is/are correct?

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

Q.37) Solution (c)

Basic Information:

- Hundreds of small streams originating in the Western Ghats flow swiftly westwards and join the Arabian Sea.
- But unique is the case of two major west flowing rivers narmada and Tapi. They originate in the Vindhyan mountains and don't form valleys but instead they flow through faults created due to the bending of the northern peninsula during the formation process of Himalayas.
- The Peninsular rivers which fall into the Arabian Sea do not form deltas, but only estuaries.
- Other west flowing rivers include Sabarmati, mahi, mandovi, Zuari, Rachol, Kalinadi, Bedti, Sharavati, Netravati, Beypore, Pannam, Bharatapuzha, Periyar, pamba etc.

Statement Analysis:

Statement 1	Statement 2
-------------	-------------

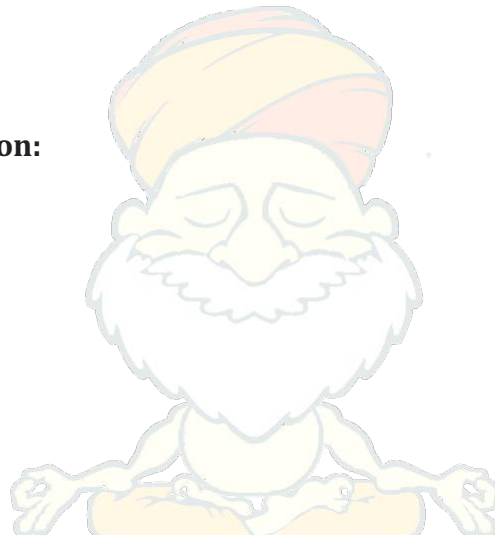
Correct	Correct
The areal extent of west flowing rivers is just about 3 percent but they contain about 18 percent of countrys water resources.	Western ghats is the source of several hundred small streams. All of them flow into the Arabian sea.

Q.38) Arrange the following rivers with decreasing order of the catchment area.

1. Ganga
2. Brahmaputra
3. Mahanadi
4. Godavari
5. Cauvery

Choose the correct option:

- a) 1-2-3-4-5
- b) 1-2-3-5-4
- c) 1-2-4-3-5
- d) 1-4-2-3-5



Q.38) Solution (d)

Basic Information:

- Catchment area is the area of land from which the water flows into the river or lake or pond.

Name of river	Catchment areas (Sq kms)
Ganga	861452
Indus (In India)	321289
Brahmaputra	194413
Mahanadi	141589

Godavari	312812
Cauvery	81155
Krishna	258948

Q.39) With respect to Island groups in India consider the following statements.

1. The great Andaman group of Islands in the North is separated by Ten degree Channel from Nicobar group in the south.
2. Saddle peak in North Andaman is the highest peak in the Andaman and Nicobar.

Which of the above statements is/are correct?

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



Q.39) Solution (c)

Basic Information:

- Andaman and Nicobar and the Lakshadweep group of Islands forms the largest group of Islands far away from the Indian Coast.
- The Andaman and Nicobar Islands, a Union territory of India comprising 572 islands of which 37 are inhabited, are a group of islands at the juncture of the Bay of Bengal and the Andaman Sea. The territory is about 150 km north of Aceh in Indonesia and separated from Thailand and Myanmar by the Andaman Sea. It comprises two island groups, the Andaman Islands (partly) and the Nicobar Islands, separated by the 150 km wide Ten Degree Channel, with the Andamans to the north of this latitude, and the Nicobars to the south. The Andaman Sea lies to the east and the Bay of Bengal to the west.
- Lakshadweep, formerly known as the Laccadive, is a group of islands in the Laccadive Sea, about 200 to 440 km off the southwestern coast of India. The islands north of 11 degree north latitude are known as Amindivi Island while those south of this latitude are called Cannonore Island. In the extreme south is the Minicoy Island.

Statement Analysis:

Statement 1	Statement 2
Correct	Correct
Ten degree channel separates Andaman group with the Nicobar group of Islands.	Saddle peak with height measuring 737 mts is the highest peak in the North Andaman.

Q.40) Which is the highest peak in the satpura range of peninsular India?

- Dhupgarh
- Astamba Dongar
- Amarkantak
- Guru Shikhar

Q.40) Solution (a)

Basic Information:

- Satpura is a series of seven mountains running in an east-west direction south of the Vindhyas and in between the Narmada and Tapi, roughly parallel to the rivers.
- Commencing from the Rajpipla hills in the west, through the Mahadev hills to the Maikala range, it stretches for a distance of about 900kms.
- Dhupgarh (1350 m) near Pachmarhi on Mahadev hills is the highest peak.
- The other peaks are Astamba Dongar (1325 m) and Amarkantak (1127 m).
- Guru Shikhar is highest peak in Aravalli range.

Q.41) Consider the following statements with reference to the structure of the atmosphere:

1. The air temperature increases with height in the mesosphere.
2. Radio waves get reflected back to the earth in the mesosphere.

Which of the above statements is/are correct?

- 1 only
- 2 only
- Both 1 and 2
- Neither 1 nor 2

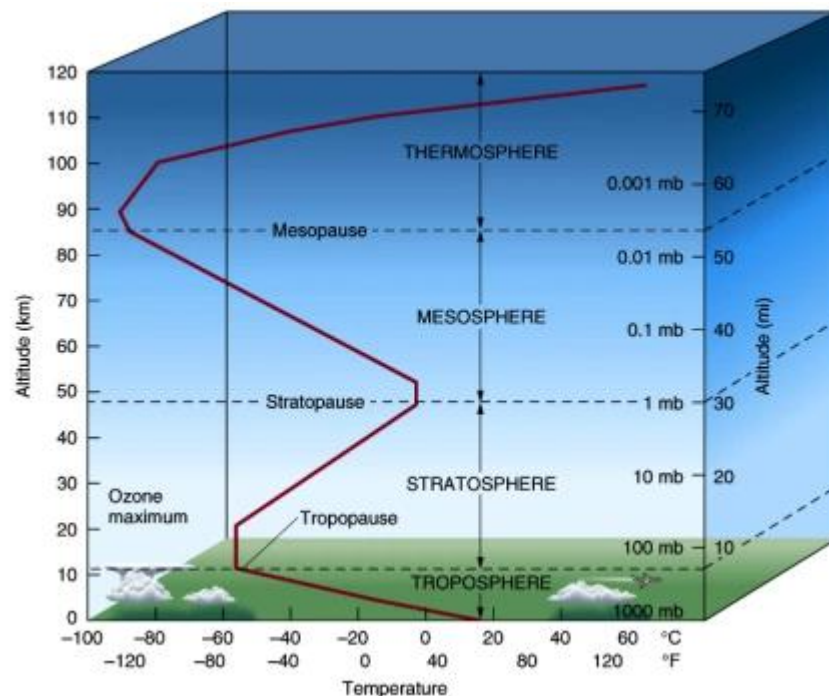
Q.41) Solution (d)

Basic Information:

Structure of the Atmosphere:

The atmosphere can be divided into five layers according to the diversity of temperature and density.

1. Troposphere
2. Stratosphere
3. Mesosphere
4. Thermosphere (Ionosphere)
5. Exosphere.



Troposphere:

- It is the lowermost layer of the atmosphere.
- The height of this layer is about 18 km on the equator and 8 km on the poles.
- The thickness of the troposphere is greatest at the equator because heat is transported to great heights by strong convection currents.
- Troposphere contains dust particles and water vapour.
- All kinds of weather changes take place only in this layer.

- The environmental temperature decreases with increasing height of the atmosphere. It decreases at the rate of 1 degree Celsius for every 165 m of height. This is called Normal Lapse Rate.
- The zone separating the troposphere from the stratosphere is known as tropopause.
- The air temperature at the tropopause is about – 80 degree Celsius over the equator and about – 45 degree Celsius over the poles. The temperature here is nearly constant, and hence, it is called tropopause.

Stratosphere:

- It extends up to a height of 50 km.
- The temperature remains almost the same in the lower part of this layer up to the height of 20 km. After this, the temperature increases slowly with the increase in the height. The temperature increases due to the presence of ozone gas in the upper part of this layer.
- The air blows horizontally here. Therefore this layer is considered ideal for flying aircraft.
- The upper limit of the stratosphere is known as stratopause.

Mesosphere:

- It extends up to a height of 80 km.
- In this layer, the temperature starts decreasing with increasing altitude and reaches up to – 100 degree Celsius at the height of 80 km.
- Meteors or falling stars occur in this layer.
- The upper limit of the mesosphere is known as mesopause.

Thermosphere:

- This layer is located between 80 and 400 km above the mesopause.
- It contains electrically charged particles known as ions, and hence, it is known as the ionosphere.
- Radio waves transmitted from the earth are reflected back to the earth by this layer and due to this, radio broadcasting has become possible.
- The temperature here starts increasing with heights.

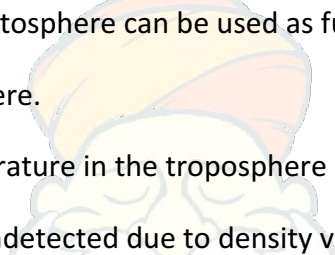
Exosphere:

- The exosphere is the uppermost layer of the atmosphere.
- Gases are very sparse in this sphere due to the lack of gravitational force. Therefore, the density of air is very less here.

Statement Analysis:

Statement 1	Statement 2
Incorrect	Incorrect
In the mesosphere, temperature decreases with increasing height.	Radio waves are reflected back to earth in the Ionosphere which is a part of Thermosphere.

Q.42) Which of the following is the reason for jets to fly in the stratosphere?

- 
- a) Ozone present in the stratosphere can be used as fuel in jets.
 - b) Stability of the stratosphere.
 - c) The minus degree temperature in the troposphere makes it impossible for jets to fly.
 - d) In stratosphere jets go undetected due to density variations.

Q.42) Solution (b)

Explanation:

Commercial jet aircraft fly in the lower stratosphere to avoid the turbulence which is common in the troposphere below. The stratosphere is very dry. Air here contains little water vapour. Because of this, few clouds are found in this layer. Almost all clouds occur in the lower, more humid troposphere. Hence, the stratosphere is relatively stable.

Q.43) With respect to the dust particles found in the atmosphere, consider the following statements.

1. Higher concentration of dust particles are found in subtropical and temperate regions.
2. Dust particles are found only in the lower stratosphere.

Which of the above statements is/are correct?

- a) 1 only
- b) 2 only

- c) 1 and 2
- d) Neither 1 nor 2

Q.43) Solution (a)

Basic Information:

- Small solid particles like sea salts, fine soil, smoke-soot, ash, pollen etc constitute the dust particles in the atmosphere.
- Dust particles act as hygroscopic nuclei around which water vapour condenses to produce clouds.

Statement Analysis:

Statement 1	Statement 2
Correct	Incorrect
The higher concentration of dust particles is found in the sub-tropical and temperate regions due to the dry winds in comparison to the equatorial and polar regions.	Usually, dust particles are found in the lower atmosphere. But sometimes the conventional currents carry them to higher levels.

Q.44) Consider the following statements.

1. The insolation received by the earth is in long wave forms and the earth radiates energy to the atmosphere in the short wave form.
2. 'Loo' in northern India is the result of an advection process.

Which of the above statements is/are correct?

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

Q.44) Solution (b)

Basic Information:

Insolation:

1. The energy received by the earth is known as incoming solar radiation or ‘Insolation’.
2. Insolation is determined by various factors like
 - The rotation of earth on its axis.
 - The angle of inclination of the Sun’s rays.
 - The length of the day.
 - The transparency of the atmosphere.
 - The configuration of the land in terms of its aspects.
3. The first three factors have a larger influence than the last two.

Advection:

There are different ways of heating and cooling of the atmosphere.

Conduction: It takes place when two bodies of unequal temperature are in contact with one another. Heat transfer takes place from warmer body to cooler body.

Convection: The process of vertical heating of the atmosphere is known as convection. The air in contact with the earth rises vertically on heating in the form of currents and further transmits the heat to the atmosphere by convection.

Advection: The transfer of heat through horizontal movement of the air is called advection. In middle latitudes most of the diurnal (day and night) variation in daily weather are caused by advection alone.

Statement Analysis:

Statement 1	Statement 2
Incorrect	Correct
Earth receives heat from the Sun in the form of short wave radiations. It emits the terrestrial radiations in the form of long wave radiations.	In Tropical regions particularly in Northern India during summer, local winds called ‘loo’ are the result of an advection process.

Q.45) 'Albedo' refers to the overall reflectivity of an object or surface. Arrange the following in descending order in terms of their "ALBEDO" value

1. Clouds
2. Snow
3. Forest
4. Charcoal
5. Deserts

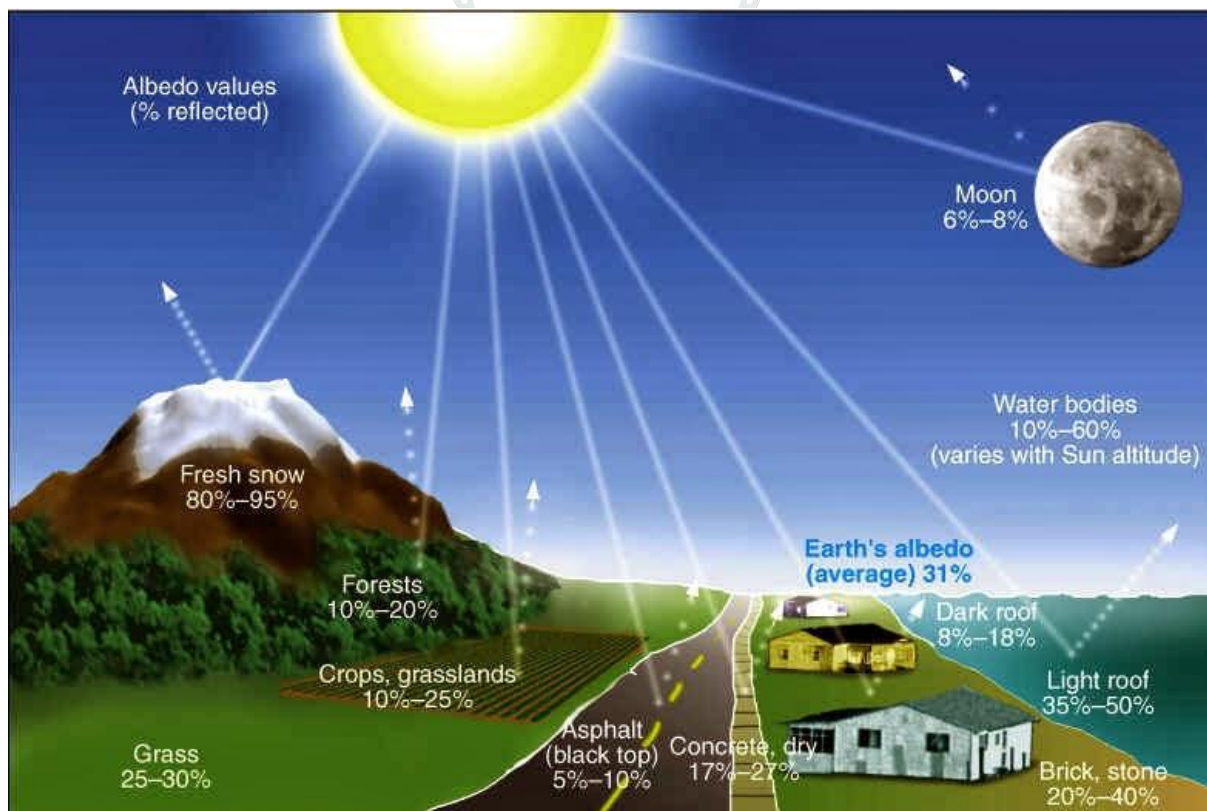
Choose the correct code:

- a) 4-3-5-1-2
- b) 4-3-5-2-1
- c) 2-1-5-3-4
- d) 2-1-5-4-3

Q.45) Solution (c)

Basic Information:

The term albedo refers to the overall reflectivity of an object or surface, usually described as a percentage the higher the albedo, the greater the amount of radiation reflected. Snow, for example, has a very high albedo (as much as 95 percent), whereas a dark surface, such as dense forest cover, can have an albedo as low as 14 percent.



Q.46) With respect to the Coriolis Force, consider the following statements.

1. Coriolis force is maximum at the equator and minimum at the poles.
2. The speed of an object increases due to the coriolis force effect.

Which of the above statements is/are correct?

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

Q.46) Solution (d)

Basic Information:

Coriolis effect: It is a deflecting force experienced due to rotation of earth. Because of coriolis the air appears to turn towards its right in the northern hemisphere and towards its left in the southern hemisphere. The coriolis always acts in the perpendicular direction of the motion of air. It is zero at the equator and increases towards the poles.

The following are four basic points to remember about the Coriolis effect:

1. Regardless of the initial direction of motion, any freely moving object appears to deflect to the right in the Northern Hemisphere and to the left in the Southern Hemisphere.
2. The apparent deflection is strongest at the poles and decreases progressively toward the equator, where the deflection is zero.
3. The Coriolis effect is proportional to the speed of the object, and so a fast-moving object is deflected more than a slower one.
4. The Coriolis effect influences direction of movement only; it does not change the speed of an object.

Statement Analysis:

Statement 1	Statement 2
Incorrect	Incorrect
Coriolis force effect is minimum at equator and increases towards the pole	Coriolis affects only the direction of movement of an object but not its speed.

Q.47) What does the term ‘Geostrophic Wind’ refers to?

- It is the wind blowing parallel to the isobar due to the balance between the pressure gradient force and the coriolis force.
- It is the wind blowing perpendicular to the isobars due to the balance between the pressure gradient force and the coriolis force.
- It is the wind blowing in higher altitudes of the equator.
- It is the wind blowing in the higher altitudes of the sub-tropical regions.

Q.47) Solution (a)

Basic Information:

- The geostrophic wind is the theoretical wind that would result from an exact balance between the Coriolis force and the pressure gradient force.
- The winds in the upper atmosphere, 2 - 3 km above the surface, are free from the frictional effect of the surface and are controlled mainly by the pressure gradient and the Coriolis force. When isobars are straight and when there is no friction, the pressure gradient force is balanced by the Coriolis force and the resultant wind blows parallel to the isobar. This wind is known as the geostrophic wind.

Q.48) With respect to the local winds which among the following are correctly matched?

<u>Local Winds</u>	<u>Country/region</u>
1. Chinook	America
2. Khamsin	Libya
3. Foehn	Spain
4. Loo	India

Choose the correct option.

- 1 and 2
- 1 and 3
- 1 and 4
- All of the above

Q.48) Solution (c)

Basic Information:

List of local winds:

Local Wind	Country/Region
Chinook	America
Foehn	Switzerland
Loo	India
HArmattan	Sahara desert
Shamal	Mesopotamia
Norwester	New-Zealand
Khamsin	Egypt
Gibli	Libya
Chilli	Tunisia
Mistral	Spain and France
Bora	Adriatic sea
Blizzard	Canada

Q.49) Which of the following clouds are considered as high altitude clouds?

1. Cirrostratus
2. Altostratus
3. Cirrocumulus.
4. Stratocumulus
5. Cirrus.

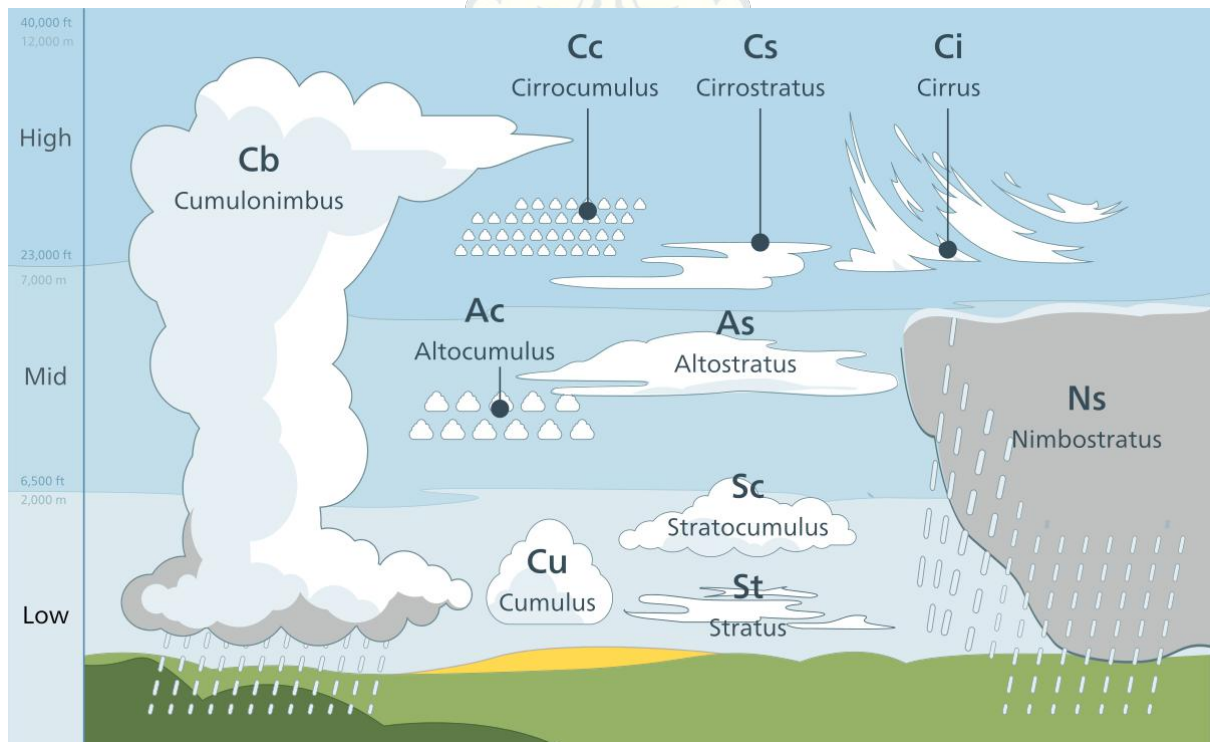
Choose the correct option:

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

Q.49) Solution (c)

Basic Information:

Type of Clouds	Height	Examples
High Altitude	Above 20,000ft from land surface	Cirrus, Cirrostratus, Cirrocumulus
Middle Altitude	6500-20000 ft	Altostratus, Altocumulus
Low Altitude	Upto 6500 ft	Stratus, Stratocumulus, Nimbostratus



Q.50) With respect to the extra-tropical cyclones and tropical cyclones, consider the following statements.

1. The extra tropical cyclones move from west to east but the tropical cyclones move from east to west.
2. The extra tropical cyclones form over both land and sea whereas tropical cyclones form only over sea.

Which of the above statements is/are correct?

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

Q.50) Solution (c)

Basic Information:

- The systems developing in the mid and high latitudes beyond tropics are called the extra tropical cyclones.
- Tropical cyclones are violent storms that originate over oceans in tropical areas and move over to the coastal areas.
- Major differences between the extra tropical cyclone and the tropical cyclone include
 1. The extra tropical cyclones have a clear frontal system which is not present in the tropical cyclones.
 2. The extra tropical cyclones cover a large area and can originate over the land and sea. Whereas the tropical cyclones originate only over the seas and on reaching the land they dissipate.
 3. The extra tropical cyclones move from west to east but tropical cyclones move from east to west.

Statement Analysis:

Statement 1	Statement 2
Correct	Correct
Extratropical cyclones move from west to east and tropical cyclones from east to west.	Tropical cyclones form over seas only while extra tropical cyclones can originate both over land and sea.

Q.51) Consider the following conditions.

1. Their climate has a concentration of rainfall in winter with onshore westerlies.
2. They have bright sunny weather with hot dry summers and wet mild winters.
3. Their climate assists orchard farming.

Which type of climate is described above?

- a) Steppe climate.
- b) Sudan climate.
- c) Laurentian climate
- d) Mediterranean climate.

Q.51) Solution (d)**Basic Information:**

- Mediterranean climate is a very pleasant climate with warm, dry summers and cool, mild winters.
- Mediterranean climate is found between the 30 degrees and 45 degree latitudes. This climate is often found on the western sides of continents.
- The majority of the regions with Mediterranean climates have relatively mild winters and very warm summers. However winter and summer temperatures can vary greatly between different regions with a Mediterranean climate.
- During summer, regions of Mediterranean climate are strongly influenced by the subtropical ridge which keeps atmospheric conditions very dry with minimal cloud coverage.
- In winter, the subtropical ridge migrates towards the equator, making rainfall much more likely. As a result, areas with this climate receive almost all of their precipitation during their winter and spring seasons, and may go anywhere from 3 to 6 months during the summer and early fall without having any significant precipitation.
- The region is famous for wine orchards.

Q.52) With respect to the cyclones and anticyclones, consider the following statements.

1. Cyclones have high pressure at the centre while anticyclones have low pressure at the centre.
2. Winds blow anticlockwise in the northern hemisphere in cyclones and clockwise in anticyclones.

Which of the above statements is/are correct?

- a) 1 only
- b) 2 only
- c) 1 and 2
- d) None

Q.52) Solution (b)

Basic Information:

Cyclones:

- Cyclones are violent storms that originate over oceans in tropical areas and move over to the coastal areas. Cyclones are areas of low pressure.
- In Cyclones, air moves from areas of high pressure to low pressure that produce a convergence at the surface. This converging air is forced upwards into the atmosphere, creating a divergence aloft. As warm, moist air is sucked into the low and forced aloft, it produces an unstable atmosphere. This warm, moist air cools, condenses and forms storm clouds.

Anti-cyclones:

- Anticyclones are areas of high pressure. In anticyclones, the sinking air spreads out when it reaches the ground producing a divergence at the surface. Aloft, air rushes in to fill the void, creating a convergence aloft.
- Anticyclones produce a stable atmosphere.
- Anticyclones, or highs, are also referred to as blocking highs because they tend to force areas of low pressure to travel around them.

Statement Analysis:

Statement 1	Statement 2
Incorrect	Correct
The major difference between the cyclones and anticyclones is that the cyclones are low pressure systems. Winds blow from outside towards inside i.e, from high pressure outside to low pressure at the centre. While this is opposite in the anticyclones.	Winds blow anti-clockwise in the Northern hemisphere and clockwise in the southern hemisphere in cyclones due to coriolis force. While in anticyclones winds blow clockwise in the northern hemisphere and anti-clockwise in southern hemisphere.

Q.53) With respect to the westerlies, consider the following statements.

1. They are much stronger in the Northern hemisphere than in the southern hemisphere.
2. They bring much precipitation to the western coasts of the continents.

Which of the above statements is/are correct?

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

Q.53) Solution (b)

Basic Information:

Westerlies:

- The westerlies are the winds blowing from the sub-tropical high pressure belts towards the sub polar low pressure belts.
- They blow from south-west to north-east in the northern hemisphere and north-west to south-east in the southern hemisphere.
- The westerlies are best developed between 40 degree South and 60 degree South latitudes. These latitudes are often called Roaring Forties, Furious Fifties, and Shrieking or stormy Sixties.
- The poleward boundary of the westerlies is highly fluctuating. There are many seasonal and short-term fluctuations. These winds produce wet spells and variability in weather.

Statement Analysis:

Statement 1	Statement 2
Incorrect	Correct
The westerlies of the southern hemisphere are stronger and persistent due to the vast expanse of water, while those of the northern hemisphere are irregular because of uneven relief of vast land-masses.	Since they blow from southwest to North-east in the Northern hemisphere and north-west to south east in the southern hemisphere, they bring much precipitation to the western coasts. The eastern coasts

	remain dry since winds are offshore.
--	--------------------------------------

Q.54) Consider the following statements with respect to tornados

1. Tornados are the manifestations of the atmosphere's adjustment to varying energy distribution.
2. Tornados only occur in the equatorial regions due to convectional rains.

Which of the above statements is/are correct?

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

Q.54) Solution (a)

Basic Information:

- Tornados are vertical funnels of rapidly spinning air.
- Their winds may top 250 miles an hour and can clear a pathway a mile wide and 50 miles long.
- Tornados are born in thunderstorms and are often accompanied by hail.
- Thunderstorms are caused by intense convection on moist hot days. A thunderstorm is a well-grown cumulonimbus cloud producing thunder and lightning.

Statement Analysis:

Statement 1	Statement 2
Correct	Incorrect
The severe storms like thunderstorms and tornados are manifestations of the nature's adjustment to energy distributions.	Tornados can occur anywhere in the world. But they are usually found in the middle latitudes.

Q.55) Consider the following statements with respect to Climates of the world.

1. In the tropical climates, the mean monthly temperature throughout the year is over 18 degree centigrade.
2. In the warm temperate climates, the mean temperature of the coldest month is between 18 degree centigrade to minus 3 degree centigrade.

Choose the correct option:

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

Q.55) Solution (c)

Basic Information:

The Various features of the climate of the world include.

- Tropical climates, where the mean monthly temperature throughout the year is over 18°C.
- Dry climates, where precipitation is very low in comparison to temperature, and hence, dry. If dryness is less, it is semi- arid (S); if it is more, the climate is arid(W).
- Warm temperate climates, where the mean temperature of the coldest month is between 18°C and minus 3°C.
- Cool temperate climates, where the mean temperature of the warmest month is over 10°C, and the mean temperature of the coldest month is under minus 3°C.
- Ice climates/Cold Climates, where the mean temperature of the warmest month is under 10°C.

Statement Analysis:

Statement 1	Statement 2
Correct	Correct
Mean Monthly temperature in tropical areas is above 18 degree centigrade throughout the year.	The coldest month in the warm temperate climate have temperatures between 18 degree and minus 3 degree centigrades.

Q.56) What does the term ‘Water Spouts’ in meteorology refer to?

- a) Tornadoes over the land surfaces.
- b) Tornadoes over the sea surfaces.
- c) Tornadoes over the tropical regions.
- d) Tornadoes over the temperate regions.

Q.56) Solution (b)

Explanation:

- Tornadoes are vertical funnels of rapidly spinning air.
- Their winds may top 250 miles an hour and can clear a pathway a mile wide and 50 miles long.
- Tornadoes are born in thunderstorms and are often accompanied by hail.
- Tornadoes over the sea surfaces are called “Water Spouts”.

Q.57) Higher temperature is experienced in the sub-tropical areas than the equatorial areas due to which of the following reasons?

- a) Sub-tropics have high pressure.
- b) Sub-tropics experience more influence of warm ocean currents than the equatorial regions.
- c) Sub-tropical areas have less cloud cover than the equatorial regions.
- d) Sub-tropics have more off-shore winds than the equatorial regions.

Q.57) Solution (c)

Explanation:

Equatorial areas have rainfall almost everyday. The cloud cover is more in these regions. But the subtropical areas have lesser cloud cover and lesser rainfall than the equatorial areas. Hence the temperature is higher in subtropics than the equatorial regions.

Q. 58) Stratocumulus clouds are responsible for many meteorological events. Consider the following statements with respect to the stratocumulus clouds.

1. Stratocumulus clouds keep the oceans warm during the night time.

2. Stratocumulus clouds are usually formed due to the evaporation of the sea water.

Which of the above statements is/are correct?

- 1 only
- 2 only
- 1 and 2
- Neither 1 nor 2

Q.58) Solution (c)

Basic Information:

- Stratocumulus clouds are low-level clumps or patches of cloud varying in colour from bright white to dark grey.
- They are the most common clouds on earth recognised by their well-defined bases, with some parts often darker than others.
- Marine stratocumulus clouds cover about 20 percent of the earth's surface and reflect about 30 percent of the sun's radiation.

Statement Analysis:

Statement 1	Statement 2
Correct	Correct
Clouds deflect the radiation of the earth back into the earth. Hence, the oceans below the vast expanse of stratocumulus clouds remain warm during night time.	They are usually found above the sea surfaces and formed due to the evaporation of the sea water.

Q.59) Consider the following statements with respect to the location of the hot deserts.

- Hot deserts are the results of the offshore trade winds in the western margin of the continents.
- Majority of the hot deserts are formed between 15 and 30 degree latitudes in both the hemispheres.

Which of the above statements is/are correct?

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

Q.59) Solution (c)

Basic Information:

- Hot deserts are hot arid areas with little rainfall, extreme temperature and sparse vegetation.
- Generally, the deserts that are found in the tropical and subtropical regions between the 15 degrees and 30 degrees north and south of the equator are hot deserts.
- The annual rainfall in a hot desert is less than 250 mm that makes them very dry.
- Most of the hot deserts tend to lose water continuously as they are located on the path of trade winds. Their aridity is mainly due to the off-shore trade winds, so they are also known as Trade Wind Deserts.
- They are also devoid of cover of clouds due to the strong winds.
- The maximum temperature in a hot desert generally remains over 40 degree centigrade.

Statement Analysis:

Statement 1	Statement 2
Correct	Correct
Most of the hot deserts are located below the subtropical high pressure belts between 15 degree and 30 degree latitudes in both the hemispheres.	Hot deserts are created in the western margins of the continents where the trade winds are offshore. Hence they receive little rainfall.

Q.60) Which of the following conditions are favourable for formation of temperature inversion?

1. Short nights
2. Clear skies
3. Calm and stable air

Choose the correct option:

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

Q.60) Solution (b)

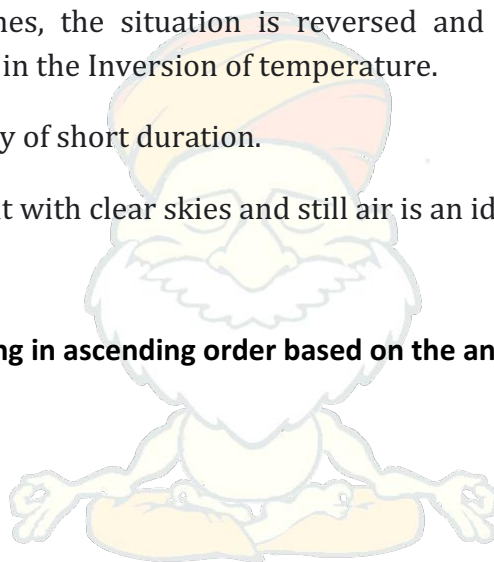
Basic Information:

Temperature Inversion:

- Temperature inversion, is a condition in the atmosphere in which a layer of cool air at the surface is overlain by a layer of warmer air.
- Normally, temperature decreases with increase in elevation. It is called normal lapse rate. At times, the situation is reversed and the normal lapse rate is inverted resulting in the Inversion of temperature.
- Inversion is usually of short duration.
- A long winter night with clear skies and still air is an ideal situation for inversion.

Q.61) Arrange the following in ascending order based on the annual yield of water in the river system.

1. Ganga
2. Mahanadi
3. Godavari
4. Brahmaputra



Choose the correct option:

- a) 2-3-4-1
- b) 2-3-1-4
- c) 3-2-4-1
- d) 3-2-1-4

Q.61) Solution (b)

Basic Information:

According to an estimate made by S.P.Dasgupta the annual yield of water in the rivers of the country is 1,858,100 million cubic metre (calculated for basin area in Indian territory only).

The percentage contribution of each river system is as follows.

River	Percentage contribution
Brahmaputra	33.8
Ganga	25.2
Godavari	6.4
Indus	4.3
Mahanadi	3.6
Krishna	3.4
Narmada.	2.9

Q.62) Consider the following statements.

1. The Himalayan rivers are examples of the antecedent drainage.
2. Over 90 percent of the water carried by the Indian rivers is housed into the Arabian sea.

Which of the above statements is/are correct?

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

Q.62) Solution (a)

Basic Information:

Antecedent rivers:

The Rivers that existed before the upheaval of the Himalayas and cut their courses southward by making gorges in the mountains are known as the antecedent rivers.

Drainage pattern:

- The Indian Drainage is divided into two major drainage systems based on the orientation of the sea. These include 1. The Bay of Bengal drainage and 2. Arabian Sea drainage.
- About 77 percent of the drainage area of the country is oriented towards the Bay of Bengal. And over 23 percent of the country's drainage area is oriented towards the Arabian Sea.

Statement Analysis:

Statement 1	Statement 2
Correct	Incorrect
The gorges of the Indus, the Satluj, the Alaknanda, the Gandak, the Kosi, Brahmaputra clearly indicate that these rivers are older than the mountains themselves. Hence they are called antecedent rivers.	Over 90 percent of the water carried by the Indian rivers is housed into the Bay of Bengal not the Arabian sea.

Q.63) "Singge Khabab" is the name of the following river?

- a) Jhelum
- b) Beas.
- c) Indus
- d) Ravi

Q.63) Solution (c)

Indus river:

The Indus river rises near the Mansarovar Lake from the glaciers of the Kailash range in western Tibet at an elevation of 5,182 mts. It flows for a distance of 257 kms in North west direction in the trans-himalaya region under the name of Singge Khabab. Further it enters India and continues its flow in the same direction between the Ladakh and Zaskar ranges. The major tributaries include the Jhelum, Ravi, Beas, Sutlej and Chenab.

Q.64) Arrange the following in ascending order based on their catchment areas.

1. Mahanadi
2. Krishna
3. Cauvery
4. Godavari

Choose the correct option:

- a) 3-1-2-4
- b) 3-1-4-2
- c) 1-3-2-4
- d) 1-3-4-2

Q.64) Solution (a)

Basic Information:

Name of river	Catchment areas (Sq kms)
Ganga	861452
Indus (In India)	321289
Brahmaputra	194413
Mahanadi	141589
Godavari	312812
Cauvery	81155
Krishna	258948
Narmada	98795
Tapi	65145
Penneru	55213

Mahi	34481
Subarnarekha	19296
Sabarmati	21895

Q.65) Consider following statements with respect to the peninsular rivers.

1. The Narmada and Tapi flow in the valleys created by themselves.
2. The peninsular rivers which fall into the Arabian sea do not form deltas but only estuaries.
3. The peninsular drainage system is older than the Himalayan drainage.

Which of the above statements is/are correct?

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

Q.65) Solution (b)

Basic Information:

- Peninsula rivers are much older than the Himalayan rivers.
- They are non-perennial/seasonal rivers with a maximum discharge in the rainy season.
- The main water divide in peninsular rivers is formed by the Western Ghats.
- The peninsular rivers have reached mature stage and have almost reached their base level.
- The rivers are characterized by broad and shallow valleys.
- The river banks have gentle slopes except for a limited tract where faulting forms steep sides.
- The east flowing rivers like the Mahanadi, the Godavari, the Krishna and the Cauvery draining into the Bay of Bengal make deltas at their mouths. But the west flowing rivers of Narmada and Tapi as well as those originating from the Western Ghats and falling in the Arabian Sea form estuaries in place of deltas.

Statement Analysis:

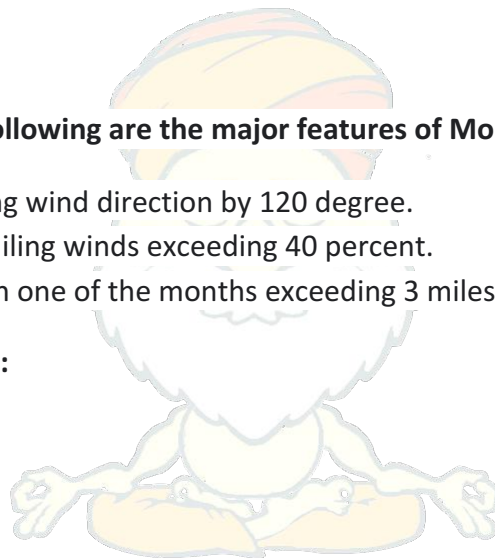
Statement 1	Statement 2	Statement 3
Incorrect	Correct	Correct
Narmada and Tapi do not flow in the valleys created by themselves but instead flow in the two fault planes running parallel to the Vindhyas.	The peninsular rivers like Narmada and Tapi flow through the hard rocks in the fault planes are not able to form distributaries before they enter the sea. Hence they cannot form deltas but only estuaries are formed.	Peninsular drainage is older than the Himalayan drainage system which is evident by the broad and shallow valleys.

Q.66) Which among the following are the major features of Monsoon Winds in India?

1. Shifting of prevailing wind direction by 120 degree.
2. Frequency of prevailing winds exceeding 40 percent.
3. The wind velocity in one of the months exceeding 3 miles per second.

Choose the correct option:

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



Q.66) Solution (d)

Basic Information:

- Monsoons are large scale seasonal wind systems flowing over vast areas of the globe, persistently in the same direction, only to be reversed with the change of season.
- Reversal of the wind system is the key note of the monsoonal climate.
- C S Ramage has suggested the following four features of monsoon winds in India.
 1. The prevailing wind direction should shift by at least 120 degrees between January and July.
 2. The average frequency of prevailing wind direction in January and July should exceed 40 percent.

3. The mean resultant wind velocity in at least one of the months should exceed 3 miles per second.
4. There should be fewer than one cyclone - anticyclone alternation every two years, in either month, over a five degree latitude/longitude grid.

Q.67) Consider the following statements.

1. Monsoonal rainfall in India is largely Orographic.
2. Indian rainfall is basically torrential in nature.

Which of the above statements is/are correct?

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

Q.67) Solution (c)

Explanation:

- Monsoonal rainfall is largely orographic in its mode of occurrence and is governed by relief. The Himalayan and the Western Ghats are the main rainfall controlling relief features. The Himalayas obstruct the moisture laden monsoon winds from the Indian Ocean and cause rainfall in the North eastern states and in the Indus-Ganga-Brahmaputra plain. Also, the western ghats obstruct the rain bearing clouds from the arabian sea causing heavy rainfall on its windward side and rain shadow area on its leeward side.

Hence statement 1 is correct.

- Indian rainfall is torrential in nature. Much of the rainfall is received in 3-4 months of the rainy season. The actual rainy days are even less.

Hence, statement 2 is correct.

Q.68) The drainage of south Koel and subarnarekha are examples of which drainage pattern?

- a) Dendritic
- b) Trellised
- c) Centripetal
- d) Radial.

Q.68) Solution (d)**Basic Information:**

- The flow of water through a particular channel is called drainage.
- 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 the 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 Uttaraanchal presents the best example of this type of pattern.

Q.69) Hiran, Banjar, Tawa are tributaries of which of the following rivers?

- a) Krishna.
- b) Mahanadi.
- c) Narmada.
- d) Chambal.

Q.69) Solution (c)**Basic Information:**

Name of the river	Tributary
-------------------	-----------

IASBABA 60 DAY PLAN 2020 –GEOGRAPHY

Ganga	Alaknanda, Pindar, Mandakini, Dhauliganga, Ramganga, Ghagra, Gandak, Kosi.
Yamuna	Chambal, Ken, Sind, Betwa.
Indus	Ravi, Chenab, Beas, Jhelum, Satluj.
Mahanadi	Ib, Mand, Hasdo, Sheonath, Ong, Jonk, Tel
Godavari	Manjra, Penganga, Wainganga, Wardha, Indravati, Sabari
Krishna	Koyna, Ghataprabha, Malaprabha, Bhima, Tungabhadra, Musi
Cauvery	Harangi, Hemavati, Shimsha, Arkavati, Lakshmana thirtha, Kabani
Narmada	Hiran, Barna, Kolar, Burher, Banjar, Shar, Tawa, Kundi
Tapi	Purna, Betul, Patki, Ganjal, Dathranj, Bokad.

Q.70) Consider the following statements with respect to winter weather in India.

1. The peninsular India has distinct winter weather.
2. The intense cold conditions in the north during the months of December and January is the result of western disturbances originating in Mediterranean Sea.

Which of the above statements is/are correct?

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

Q.70) Solution (b)

Basic Information:**Seasons in India:**

The Indian Meteorological department (IMD) has recognised four distinct seasons in India.

1. Cold Weather season or the winter season.
2. The hot weather season of the summer season.
3. The south-west monsoon season or the rainy season.
4. The season of retreating monsoons or the cool season.

The cold weather season commences in November and continues till March. Clear sky, pleasant weather, low temperature and humidity, cool and slow northern winds are the chief characteristics of this season.

Statement Analysis:

Statement 1	Statement 2
Incorrect	Correct
<p>The isotherm of 20 degree centigrade runs in east west direction, roughly parallel to the tropic of cancer and divides India climatically in northern and southern parts. To the south of this isotherm the temperatures are sometimes above 20 degree centigrades during the winter season. In the extreme south the temperatures may well be above 25 degree centigrades. Hence, the peninsular india don't have distinct winter weather.</p>	<p>During the winter season the weather is often broken due to the inflow of depressions called western depressions. They originate in the Mediterranean sea and enter India after crossing over Iraq, Iran and Afghanistan. They sometimes lower the temperature below 5 degree centigrade in Northern India.</p>

Q.71) Which among the following factors are related to the origin and onset of Monsoons in India?

1. Intense heating of Tibetan plateau.
2. Movement of westerly jet stream to south of Himalayas.
3. Presence of a high pressure area to the south of Madagascar.
4. Cyclonic formations in temperate zones.

Choose the correct option:

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

Q. 71) Solution (a)

Basic Information:

The origin and onset of Monsoons in India is the combination of several factors. Prominent among them include.

- The differential heating and cooling of land and water leading to creating of low pressure on the landmass and high pressure on the seas.
- Intense heating of tibetan plateau causes vertical air movements and creation of low pressure areas.
- The movement of westerly jet stream to the north of Himalayas and appearance of easterly jet stream over the peninsular plateau (15 degree north latitude).
- The shift of Inter-tropical convergence zone over the Ganga plain during the summer and to the south of the peninsular during winter.
- The presence of a high pressure area, east of Madagascar, approximately at 20 degree south latitude has greater influence over the onset of monsoons over Indian subcontinent.

Q.72) Which of the following are correctly matched?

<u>River</u>	<u>Origin</u>
1. Jhelum	verinag
2. Chenab	Near Rohtang pass.
3. Ravi	Near Bara lacha la.
4. Satluj	Manasarovar-rakas lakes.

Choose the correct option:

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

Q.72) Solution (c)

Basic Information:**Major rivers and their origins.**

Rivers	Origin
Indus	Manasarovar
Chenab	Near Bara lacha la pass.
Ravi	Near Rohtang pass.
Beas	Near rohtang pass
Satluj	Manasarovar-Rakas lake
Ganga	Gangotri
Yamuna	Yamnotri glacier on Bandarpunch peak
Chambal	15 kms SW of Mhow (Janapao Hills of Vindhya)
Son	Amarkantak plateau
Damodar	Chotanagpur plateau
Ghagra	Gurla Mandhata peak
Brahmaputra	Chemayungdang glacier
Godavari	Trimbak plateau
Krishna	Mahabaleshwar
Bhima	Matheron hills

Cauvery	Taal Cauvery in Kodagu district of Karnataka
Narmada	Amarkantak plateau
Tapi	Multai in Betul district of Madhya Pradesh

Q.73) Consider the following statements.

1. Brahmaputra has braided channels for most of its passage in Assam.
2. Brahmaputra has a steep slope while passing eastwards at the high altitudes in the Tibet region.

Which of the above statements is/are correct?

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

Q.73) Solution (a)

Basic Information:

Brahmaputra river

- The Brahmaputra, called Yarlung Tsangpo in Tibet, Siang/Dihang River in Arunachal Pradesh and Luit or Dilao in Assam, is a trans-boundary river which flows through Tibet, India and Bangladesh.
- With its origin in the chemayungdung glacier near the Manasarovar Lake region, located on the northern side of the Himalayas in Burang County of Tibet, it flows along southern Tibet to break through the Himalayas in great gorges (including the Yarlung Tsangpo Grand Canyon) and into Arunachal Pradesh (India). It flows southwest through the Assam Valley as Brahmaputra and south through Bangladesh as the Jamuna. In the vast Ganges Delta, it merges with the Padma, the popular name of the river Ganges in Bangladesh, and finally, after merging with Padma, it becomes the Meghna.

Statement Analysis:

Statement 1	Statement 2
Correct	Incorrect
Brahmaputra has a braided channel for most of its passage in Assam. There is a constant shifting of the river channels and the sandy shoals. It carries lots of silt and has excessive meandering.	Brahmaputra flows in southern Tibet and for most part of this journey it passes through the depression formed by the Indus-Tsangpo structure zone between the great Himalayas in the south and the Kailas range in the North. The river has a gentle slope (Not steep slope) despite flowing at high altitude.

Q.74) What does the term “October Heat” refer to in Indian climatic context?

- a) Increase in temperature in North India due to stubble burning in Haryana.
- b) Increase in temperature in North India due to hot winds from Rajasthan.
- c) Warm and humid conditions in North India during retreating monsoons.
- d) Excessive heat due to Temperature inversion in north India.

Q. 74) Solution (c)

Explanation:

The weather in the month of October in the Indian subcontinent is called 'October heat'. During October and November with the apparent movement of the sun towards the south, the monsoon trough or the low-pressure trough over the northern plains becomes weaker. This is gradually replaced by a high-pressure system. The south-west monsoon winds weaken and start withdrawing gradually. By the beginning of October, the monsoon withdraws from the northern plains. The months of October and November form the period of transition from hot rainy season to the dry winter conditions. The retreat of the monsoon is marked by clear skies and a rise in temperature. While day temperatures are high, nights are cool and pleasant. The land is still moist and the weather becomes rather oppressive during the day and is commonly known as October heat.

Q.75) Which of the following is the reason for the Breaks in the Indian Monsoons?

- a) Southward shift of the Monsoon trough.

- b) Northward shift of the Monsoon trough.
- c) Disappearance of easterly jet stream from the peninsular plateau.
- d) Appearance of a westerly jet stream in the Northern plains.

Q.75) Solution (b)**Explanation:**

During the rainy season, in the months of July and August, there are certain periods when the monsoons become weak. The cloud formation decreases and rainfall practically ceases over the country outside the Himalaya belt and southern peninsula. This is known as break in the monsoon. The breaks are believed to be brought about by the collapse of the Tibetan high which results in the Northward shift of the Monsoon trough. The axis of the trough lies at the foothills during the break period.

Q.76) Which of the following best describes the “Southern Oscillation”?

- a) Fluctuation in pressure over northern and southern Indian Ocean.
- b) Fluctuation in pressure over Northern and Southern Pacific Ocean.
- c) Fluctuation in pressure over western and eastern Indian Ocean.
- d) Fluctuation in pressure over equatorial Indian and pacific oceans.

Q. 76) Solution (d)**Explanation:**

Southern Oscillation refers to the sea-saw pattern of pressure changes observed between the Pacific and Indian oceans. When the pressure is high over the equatorial south pacific, it is low over the equatorial south Indian ocean and vice versa. The pattern of high and low pressures over the Indian and Pacific Oceans gives rise to vertical circulation along the equator with its rising limb over the low pressure area and descending limb over the high pressure area. This is known as Walker circulation. The location of low pressure over the Indian ocean during winter is considered conducive for monsoons development. But its shifting eastwards brings lesser rainfall or weaker monsoons.

Q.77) Which of the following are correctly matched?

<u>Pre-Monsoon showers</u>	<u>Local names</u>
1. Kal baisakhi	Assam
2. Blossom Showers	Karnataka

3. Bordoisila West-Bengal.

Choose the correct option:

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

Q.77) Solution (b)

Basic Information:

- Mango showers is a colloquial term to describe the occurrence of pre-monsoon rainfall. Sometimes these rains are referred to generically as 'April rains' or 'Summer showers'.
- These rains normally occur from March to April, although their arrival is often difficult to predict. Their intensity can range from light showers to heavy and persistent thunderstorms.
- In India, the mango showers occur as the result of thunderstorm development over the Bay of Bengal.
- They are also known as 'Kaal Baisakhi' in Bengal, as 'Bordoisila' in Assam and as 'Cherry Blossom shower' or 'Coffee Shower' in Karnataka and Kerala.

Q.78) With respect to the Easterly Jet Streams consider the following statements.

1. Easterly jet streams steer the tropical depressions into India.
2. Easterly Jet Streams shift southward during the south west monsoon season.

Choose the correct statement.

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

Q.78) Solution (a)

Basic Information:

- The Easterly Jet stream is the meteorological term referring to an upper level easterly wind that starts in late June and continues until early September.

- This strong flow of air that develops in the upper atmosphere during the monsoon is centered on 15 degree north and extends from South-East Asia to Africa.
- Tropical Easterly Jet comes into existence quickly after the tropical westerly Jet has shifted to the north of the Himalayas.
- Easterly jet flows from east to west over peninsular India at 6 – 9 km and over the Northern African region.
- The formation of the Jet stream results in the reversal of upper air circulation patterns and leads to the quick onset of monsoon.

Statement Analysis:

Statement 1	Statement 2
Correct	Incorrect
The easterly jet streams tropical depressions into India during the month of August and September.	There is no shift of the easterly jet stream. But the westerly jet stream shifts towards the north before the onset of the monsoons.

Q.79) Which of the following rivers are west flowing in India?

1. Mandovi.
2. Netravati
3. Krishna
4. Bedti.

Choose the correct option.

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

Q.79) Solution (c)

Basic Information:

List of West Flowing rivers in India:

Narmada, Tapi, Sabarmati, Mahi, Luni, Mandovi, Zuari, Rachol, Kalinadi, Netravati, Bedti, Sharavati, Tadri, Pannam, Bharatpuzha, Periyar, Pamba etc.

Q.80) The chambal ravines have acquired geological significance in India. Which of the following kinds of topography is created by the chambal river?

- a) Senile topography.
- b) Badland topography.
- c) Karst Topography.
- d) Riverine topography.

Q.80) Solution (b)

Basic Information:

- Badlands are a type of dry terrain where softer sedimentary rocks and clay-rich soils have been extensively eroded by wind and water.
- They are characterized by steep slopes, minimal vegetation, lack of a substantial regolith, and high drainage density.
- Canyons, ravines, gullies, buttes, mesas, hoodoos and other such geologic forms are common in badlands. They are often difficult to navigate by foot.
- Chambal River has created extensive ravines and badland topography along its course.

Q.81) Which of the following evidence formed the basis for the “SeaFloor Spreading” hypothesis put forth by Harry Hess?

1. Young oceanic crust rocks compared to older continental rocks.
2. Deep earthquakes foci at mid-oceanic ridges.
3. Similar magnetic properties of rocks equidistant on either sides of the crest of mid-oceanic ridges.
4. Active volcanoes along continent-ocean margins.

Choose the correct option:

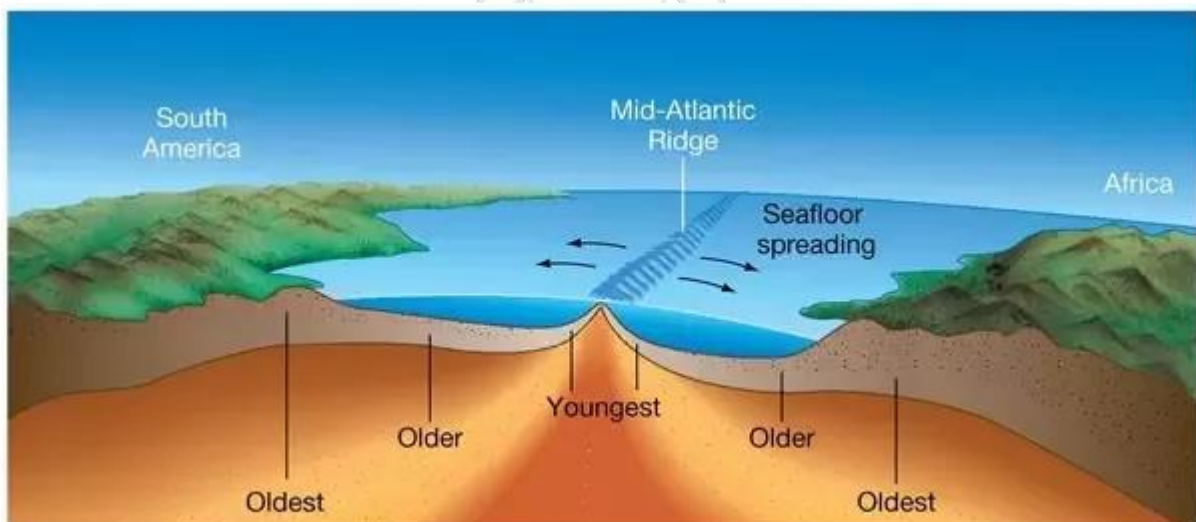
- a) 2 and 4
- b) 1 and 3
- c) 1, 2 and 3
- d) 1, 2, 3 and 4

Q.81) Solution (b)

Explanation:

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.
- The hypothesis was based on the following observations.
 1. All along the mid-oceanic ridges, volcanic eruptions are common and they bring a huge amount of lava to the surface.
 2. The rocks equidistant on either side of the ridges show remarkable similarities in terms of period of formation, chemical compositions and magnetic properties.
 3. The ocean crust rocks are much younger than the continental rocks. The age of rocks in the oceanic crust is nowhere more than 200 million years old. Some of the continental rock formations are as old as 3,200 million years.
 4. The sediments on the ocean floor are very thin.
 5. The oceanic ridge areas have shallow earthquake foci while the deep trenches have deep seated foci.



Q.82) Which of the following are the examples of cold ocean currents?

1. Humboldt Current.
2. Kuroshio Current.
3. Falkland Current.
4. Labrador Current.

Choose the correct option:

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

Q.82) Solution (c)

Basic Information:

List of Ocean Currents:

Warm Ocean Currents	Cold Ocean Currents
<ol style="list-style-type: none"> 1. North Equatorial Current 2. Kuroshio Current 3. North Pacific Current 4. Alaskan Current 5. Counter Equatorial Current, 6. El Nino Current 7. Tsushima Current 8. South Equatorial Current 9. East Australian Current 10. Florida Current 11. Gulf Stream 12. Norwegian Current 13. Irminger Current 14. Rannell Current 15. Antilles Current 16. Brazilian Current 17. Mozambique Current 18. Agulhas Current 	<ol style="list-style-type: none"> 1. Humboldt or Peruvian Current 2. Kuril or Oyashio Current 3. California Current 4. Antarctica Current 5. Okhotsk Current 6. Labrador Current 7. Canary Current 8. Eastern Greenland Current 9. Benguela Current 10. Antarctica Current 11. Falkland Current 12. Somali Current 13. Western Australian Current

Q.83) Which of the following trenches are correctly matched with their location?

Trench

1. Puerto Rico Trench
2. Sunda Trench
3. Phillipine Trench
4. Tonga Trench

Ocean

- Pacific Ocean
 Indian Ocean
 Indian Ocean
 Atlantic Ocean

Choose the correct option:

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

Q.83) Solution (a)

Basic Information:

Ocean	Name of the trench
Pacific Ocean	Mariana Trench, Tonga Trench, Kurile Trench, Karmadec Trench, Phillipine Trench, Japan Trench, Peru-Chile Trench
Atlantic Ocean	Peurto-Rico Trench, South Sandwich Trench, Cayman Trench, Romanche trench, Norwegian trench.
Indian Ocean	Sunda Trench, Diamantia trench, sumatra trench.

Q.84) With respect to the Coriolis force consider the following statements.

1. Coriolis force is maximum at the equator and decreases towards poles.
2. Coriolis changes both the speed and direction of the object.

Which of the above statements is/are correct?

- a) 1 only
- b) 2 only

- c) 1 and 2
- d) None of the above.

Q.84) Solution (d)

Basic Information:

Coriolis effect: It is a deflecting force experienced due to rotation of earth. Because of coriolis the air appears to turn towards its right in the northern hemisphere and towards its left in the southern hemisphere. The coriolis always acts in the perpendicular direction of the motion of air. It is zero at the equator and increases towards the poles.

The following are four basic points to remember about the Coriolis effect:

1. Regardless of the initial direction of motion, any freely moving object appears to deflect to the right in the Northern Hemisphere and to the left in the Southern Hemisphere.
2. The apparent deflection is strongest at the poles and decreases progressively toward the equator, where the deflection is zero.
3. The Coriolis effect is proportional to the speed of the object, and so a fast-moving object is deflected more than a slower one.
4. The Coriolis effect influences direction of movement only; it does not change the speed of an object.

Statement Analysis:

Statement 1	Statement 2
Incorrect	Incorrect
Coriolis effect is maximum at the poles and decreases towards the equator.	Coriolis force only changes the direction of movement and not the speed of an object.

Q.85) With respect to the ocean deposits consider the following statements.

1. Red Clay is found prominently at the continental shelf area.
2. Oozes are mud which contain shells and skeletons of marine organisms.

Choose the correct option:

- a) 1 only
- b) 2 only
- c) 1 and 2
- d) None of the above

Q.85) Solution (b)**Basic Information:**

The ocean deposits can broadly be divided into two types:

1. The terrigenous deposits: These are found on the continental shelves and slopes and mainly consist of the rock material derived because of wear and tear.
2. The pelagic deposits: These are found over deep sea plains. These deposits mainly consist of organic remains of plants and animals.

1. Terrigenous Deposits:

- Terrigenous deposits are derived from the wear and tear of land and volcanic and organic products found majorly in the continental slope and shelf areas.
- On the basis of size of particles, the terrigenous deposits may be categorised into three classes— mud, sand and gravel.
- Mud refers to the finest particles which comprise the minute particles of rock forming minerals, principally quartz. Mud deposits are classified into blue, green and red types, based on the colour of constituents.
- Sand refers to the coarser particles.
- Gravel has even bigger particles.

2. Pelagic deposits:

- Pelagic deposits comprise 75% of the total sea floor.
- Pelagic materials consist of both organic and inorganic materials.
- Organic materials are in the form of a kind of liquid mud, called ooze, which contains shells and skeletons of various marine organisms.
- The ooze is said to be calcareous when the shell is made of calcium carbonate. The calcareous ooze may be either pteropod ooze or globigerina ooze. When the shell is made of silica, the ooze is said to be siliceous ooze, which can be either the diatom type or the radiolarian type of ooze.
- Inorganic materials are in the form of red clay of volcanic origin. The chief constituents of red clay are silicon and aluminium dioxide, while other constituents include iron, manganese, phosphorus and radium. The red clay is the most widely spread pelagic deposit and covers 38% of the sea floor.

Statement Analysis:

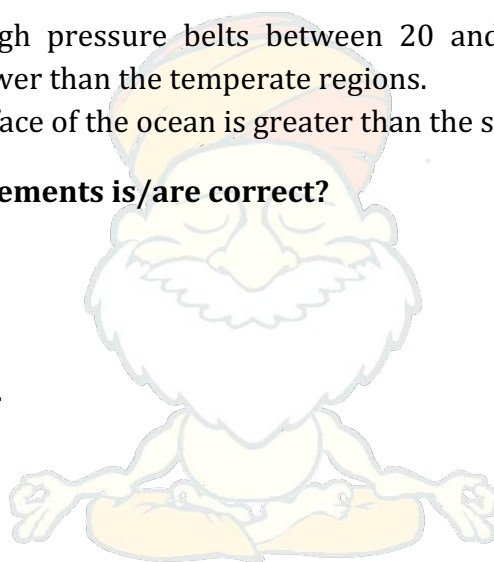
Statement 1	Statement 2
Incorrect	Correct
Red Clay is found predominantly in deep sea floors.	Oozes mainly consist of organic remains of marine organisms.

Q.86) Consider the following statements with respect to the salinity distribution of oceans.

- Salinity of the high pressure belts between 20 and 30 degrees in both the hemispheres is lower than the temperate regions.
- Salinity at the surface of the ocean is greater than the salinity at the bottom.

Which of the above statements is/are correct?

- 1 only
- 2 only
- 1 and 2
- None of the above.



Q.86) Solution (d)

Basic Information:

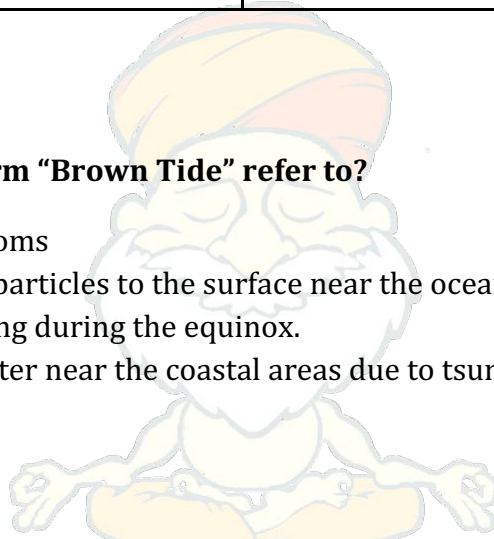
Ocean salinity is majorly decided by following factors.

- The salinity of water in the surface layer of oceans depends mainly on evaporation and precipitation.
- Surface salinity is greatly influenced in coastal regions by the freshwater flow from rivers, and in polar regions by the processes of freezing and thawing of ice.
- Wind also influences the salinity of an area by transferring water to other areas.
- The ocean currents contribute to the salinity variations. Salinity, temperature and density of water are interrelated. Hence, any change in the temperature or density influences the salinity of water in an area.

Statement Analysis:

Statement 1	Statement 2
Incorrect	Incorrect
The waters fringing the high pressure belts between 20 and 30 degree latitudes in both hemispheres have high salinity due to high rate of evaporation caused by high temperature and low humidity. The temperate oceans have lower salinity due to the lower temperature and a lower rate of evaporation.	The surface salinity is influenced by several factors like the rate of evaporation, inflow of the river waters, ocean currents etc. Hence, one cannot generally predict that surface salinity is always greater than the salinity at the bottom. It varies from place to place.

Q.87) What does the term “Brown Tide” refer to?

- 
- a) Harmful Algal Blooms
 - b) Upwelling of clay particles to the surface near the ocean margins.
 - c) High tides occurring during the equinox.
 - d) Incoming sand water near the coastal areas due to tsunami waves.

Q.87) Solution (a)**Explanation:**

Brown tides are part of growing world-wide incidences of harmful algal blooms (HAB) which are caused by a proliferation of single-celled marine plants called phytoplankton. One species of phytoplankton, the microscopic alga *Aureococcus anophagefferens* may bloom in such densities that the water turns dark brown, a condition known as "Brown tide".

Q.88) With respect to ‘Upwelling’ consider the following statements:

1. Upwelling brings deeper, colder nutrient rich water to the surface.
2. Upwelling occurs only in coastal areas.
3. The zones of upwelling are productive zones for fishing.

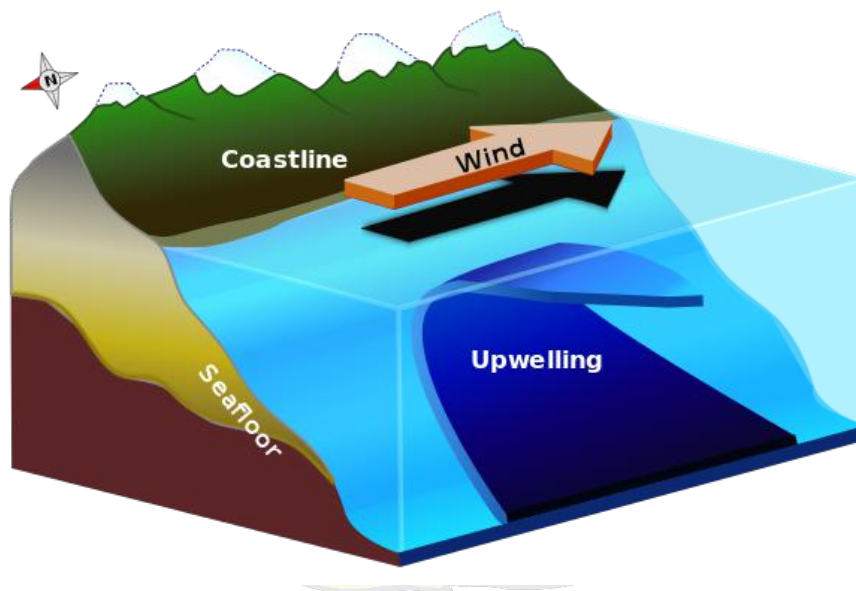
Which of the statements given above is/are correct?

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

Q.88) Solution (b)

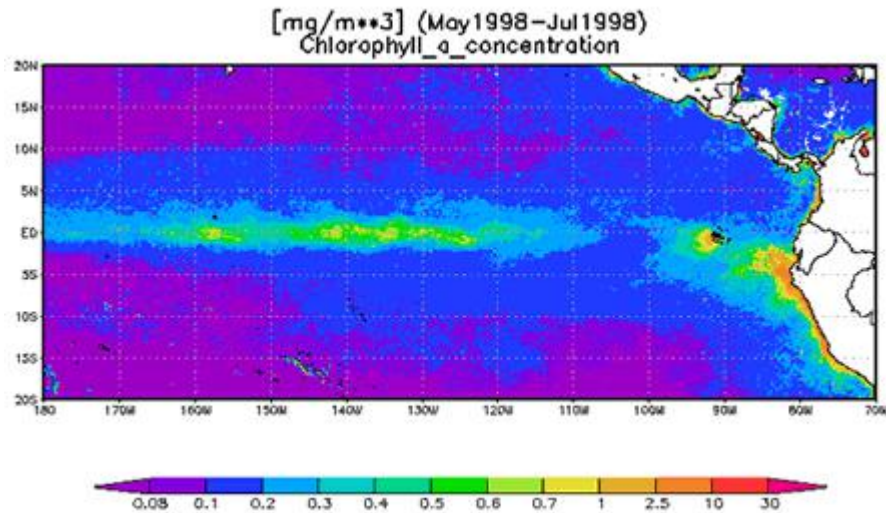
Basic Information:

Upwelling is an oceanographic phenomenon that involves wind-driven motion of dense, cooler, and usually nutrient-rich water towards the ocean surface, replacing the warmer, usually nutrient-depleted surface water. The nutrient-rich upwelled water stimulates the growth and reproduction of primary producers such as phytoplankton.



The increased availability of nutrients in upwelling regions results in high levels of primary production and thus fishery production.

There are at least five types of upwelling: coastal upwelling, large-scale wind-driven upwelling in the ocean interior, upwelling associated with eddies, topographically-associated upwelling, and broad-diffusive upwelling in the ocean interior including the upwelling at equatorial areas.



Upwelling in the equatorial areas

Statement Analysis:

Statement 1	Statement 2	Statement 3
Correct	Incorrect	Correct
When wind blows from land towards the ocean the surface water is replaced by deeper, cold water which is rich in nutrients.	It occurs even at equator near inter tropical convergence zones.	World's best fishing zones are present in upwelling zones.

Q.89) Consider the following statements with respect to the tides.

1. Neap tides and spring tides occur in the gap of seven days.
2. The tidal bulges in the narrow continental shelves have greater height.

Which of the above statements is/are correct?

- a) 1 only
- b) 2 only
- c) 1 and 2
- d) None of the above.

Q.89) Solution (a)**Basic Information:**

- The periodical rise and fall of the sea level, once or twice a day, mainly due to the attraction of the sun and the moon, is called a tide
- Based on the position of Sun, Moon and Earth tides are classified into spring and neap tide

Spring Tides	Neap Tides
When the sun, the moon and the earth are in a straight line, the height of the tide will be higher. These are called spring tides and they occur twice a month, one on full moon period and another during new moon period.	Normally, there is a seven day interval between the spring tides and neap tides. At this time the sun and moon are at right angles to each other and the forces of the sun and moon tend to counteract one another. The Moon's attraction, though more than twice as strong as the sun's, is diminished by the counteracting force of the sun's gravitational pull.

Statement Analysis:

Statement 1	Statement 2
Correct	Incorrect
Normally there is a seven day gap between the spring tide and the neap tide.	The tidal bulges have greater height in wide continental shelves. (Not narrow continental shelves).

Q.90) With respect to the Kelp Forests consider the following statements.

1. Kelp forests are recognised as most dynamic and productive ecosystems on the Earth.
2. They occur only in the temperate and polar coastal areas.

Which of the above statements is/are correct?

- a) 1 only
- b) 2 only
- c) 1 and 2
- d) None of the above.

Q.90) Solution (a)

Basic Information:

Kelp Forests:

- Kelp forests are underwater areas with a high density of kelp, which covers about 25% of the world's coastlines.
- Kelp are large brown algae that live in cool, relatively shallow waters close to the shore. They grow in dense groupings much like a forest on land. These underwater towers of kelp provide food and shelter for thousands of fish, invertebrates, and marine mammal species.
- Kelp forests provide a unique habitat for marine organisms and are a source for understanding many ecological processes.
- Kelp forests occur worldwide throughout temperate and polar coastal oceans.



Statement Analysis:

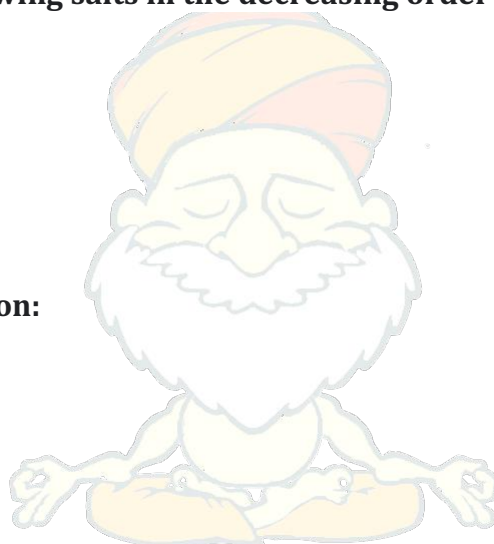
Statement 1	Statement 2
Correct	Incorrect
Kelp forests are the most dynamic and productive ecosystems habitating diversity of marine organisms.	Kelp forests are usually found in temperate and polar coastal regions. But in 2007, they were also discovered in tropical waters near Ecuador.

Q.91) Arrange the following salts in the decreasing order of their concentration in seawater.

1. Magnesium
2. Sodium
3. Potassium
4. Calcium.

Choose the correct option:

- a) 2-3-4-1
- b) 2-1-4-3
- c) 1-2-4-3
- d) 1-2-3-4



Q.91) Solution (b)

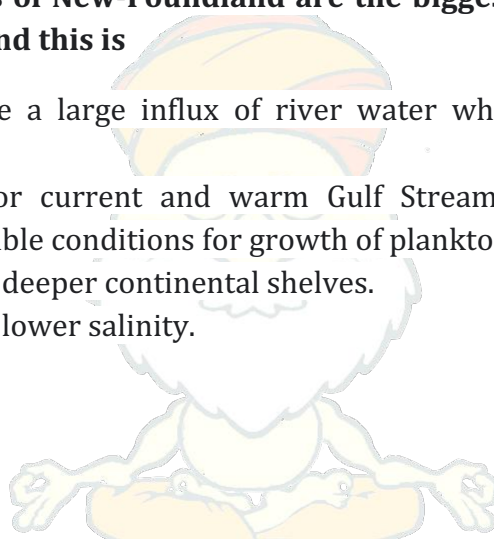
Basic Information:

Concentration of salts in seawater:

Compound/Salt	Parts Per Million (PPM) in sea water
Chloride	18980
Sodium	10561

Magnesium	1272
Sulfur	884
Calcium	400
Potassium	380
Bromine	65

Q.92) The Grand Banks of New-Foundland are the biggest fishing grounds in the world. The reason behind this is

- 
- Grand Banks have a large influx of river water which adds nutrients to the coastal water.
 - The cold Labrador current and warm Gulf Stream mixes near the vicinity producing favourable conditions for growth of plankton.
 - Grand banks have deeper continental shelves.
 - Grand banks have lower salinity.

Q.92) Solution (b)

Explanation:

- The Grand Banks of Newfoundland are a group of underwater plateaus south-east of Newfoundland on the North American continental shelf.
- These areas are relatively shallow, ranging from 15 to 91 metres in depth.
- The cold Labrador Current mixes with the warm waters of the Gulf Stream here, often causing extreme foggy conditions. The mixing of these waters and the shape of the ocean bottom lifts nutrients to the surface. These conditions helped to create one of the richest fishing grounds in the world.

Q.93) Which of the following are correctly matched?

Glacier In India State/Union Territory

- Zemu Glacier Arunachal Pradesh

- | | |
|---------------------|------------------|
| 2. Siachen Glacier | Ladakh |
| 3. Gangotri Glacier | Himachal Pradesh |
| 4. Nun Kun Massif | Ladakh |

Choose the correct option:

- 2 and 4 only
- 2 and 3 only
- 1 and 2 only
- 1, 2 and 4 only

Q.93) Solution (a)

Basic Information:

List of glaciers in India:

State/Union Territory	Glacier
Ladakh/Jammu Kashmir	Siachen, Hari Parbhat, Nun Kun Massif, Nubra
Uttarakhand	Gangotri, Satopanth
Himachal Pradesh	Bara Shigri, Beas Kund, Chhota Shigri
Sikkim	Zemu, Rathong, Lonak
Arunachal Pradesh	Bichom, Kangto

Q.94) Which of the following are favourable conditions for the growth of coral reefs?

- Temperature in the range of 18-25 degree centigrade.
- High saltish waters.
- Low sediment waters.
- Shallow waters.

Choose the correct option:

- 1 and 2 only
- 1 and 3 only

- c) 1 and 4 only
- d) All of the above.

Q.94) Solution (d)**Basic Information:****Coral Reefs:**

- A coral reef is an underwater ecosystem characterised by reef-building corals.
- Reefs are formed of colonies of coral polyps held together by calcium carbonate.

Favourable conditions for growth of Coral Reefs:

The reef building corals survive best under the following conditions:

- The temperature should be moderate between 18-25 degree centigrade. They will not flourish where there are cold currents because of the upwelling of the cold water. Hence coral reefs are generally absent on the western coasts of the continents.
- The depth of the water should not exceed 180 feet (Shallow waters) because beyond this depth sunlight is too faint for photosynthesis to take place. This is essential for the survival of the microscopic algae on which coral polyps depend.
- The water should be saltish.
- The waters should be free from sediments. Corals therefore survive best in the moving ocean water well away from the silty coasts or muddy mouths of streams.
- The corals are best developed on the seaward side of the reef where constantly moving waves, tides and currents maintain an abundant supply of clear and oxygenated water.

Q.95) According to the United Nations Convention on Law of the Sea (UNCLOS) what does the term “Territorial Waters” refer to?

- a) Area covering all water and waterways on the landward side of the baseline.
- b) Area upto 12 nautical miles from the baseline.
- c) Area upto 24 nautical miles from the baseline.
- d) Area upto 200 nautical miles from the baseline.

Q.95) Solution (b)**Basic Information:****UNCLOS:**

- The United Nations Convention on the Law of the Sea (UNCLOS) also called the Law of the Sea Convention or the Law of the Sea treaty is the international agreement that resulted from the third United Nations Conference on the Law of the Sea (UNCLOS III) which took place between 1973 and 1982.
- The Law of the Sea Convention defines the rights and responsibilities of nations with respect to their use of the world's oceans, establishing guidelines for businesses, the environment, and the management of marine natural resources.
- The convention set the limit of various areas, measured from a carefully defined baseline.

The areas are as follows:

1. Internal waters:

- Covers all water and waterways on the landward side of the baseline.
- The coastal state is free to set laws, regulate use, and use any resource.
- Foreign vessels have no right of passage within internal waters.

2. Territorial waters:

- Area upto to 12 nautical miles from the baseline.
- The coastal state is free to set laws, regulate use, and use any resource.
- Vessels are given the right of innocent passage through any territorial waters.

3. Contiguous zone:

- Beyond the 12-nautical-mile (22 km) limit, there is a further 12 nautical miles (22 km) from the territorial sea baseline limit, the contiguous zone, in which a state can continue to enforce laws in four specific areas: customs, taxation, immigration and pollution.

4. Exclusive economic zones (EEZs):

- These extend 200 nautical miles from the baseline.
- Within this area, the coastal nation has sole exploitation rights over all natural resources.

Q.96) Which of the following are freshwater lakes in India?

1. Vembanad Lake
2. Kolleru Lake
3. Tso Moriri
4. Pulicat lake

Choose the correct option:

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

Q.96) Solution (b)

Basic Information:

Saline Water Lakes in India	Freshwater Lakes in India
Sambhar lake, Chilika lake, Pulikat lake, Pongong Tso lake, Vembanad lake, Degana lake, Didwana lake, Tso Moriri, Kuchaman in Rajasthan etc	Kolleru lake, Loktak lake, Sardar Sarovar lake, Indira Sagar lake, Chandratal, suraj tal, Deepor Beel. Sheshnag, etc.

Q.97) With respect to the estuaries consider the following statements.

1. Estuaries filter water providing favourable habitats for marine organisms.
2. Estuaries provide ideal conditions for ports.

Which of the above statements is/are correct?

- a) 1 only
- b) 2 only
- c) 1 and 2
- d) None of the above.

Q.97) Solution (c)

Basic Information:

Estuaries:

- An estuary is a partially enclosed coastal body of brackish water with one or more rivers or streams flowing into it and with a free connection to the open sea.
- Estuaries form a transition zone between river environments and maritime environments known as ecotone.

- Estuaries are subject both to marine influences such as tides, waves, and the influx of saline water and to riverine influences such as flows of freshwater and sediment.
- The mixing of seawater and freshwater provides high levels of nutrients both in the water column and in sediment making estuaries among the most productive natural habitats in the world.

Statement Analysis:

Statement 1	Statement 2
Correct	Correct
Estuaries filter out sediments and pollutants from rivers and streams before they flow into the oceans. Hence they provide a healthy environment for marine organisms to thrive.	Estuaries are an important part of the shipping industry because there are many industrial ports located in estuaries due its depth of water and connection with open sea.

Q.98) The movement of ocean currents is influenced by several factors. Which of the following are the primary forces that initiate the movement of ocean currents?

1. Heating by solar energy
2. Wind
3. Gravity
4. Coriolis force

Choose the correct option

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

Q.98) Solution (d)

Basic Information:

- Ocean currents are like river flow in oceans. They represent a regular volume of water in a definite path and direction.
- Ocean currents are influenced by two types of forces namely :

- (i) Primary forces that initiate the movement of water;
- (ii) Secondary forces that influence the currents to flow.

The primary forces that influence the currents are:

- (i) heating by solar energy
- (ii) wind
- (iii) gravity
- (iv) coriolis force.

- Heating by solar energy causes the water to expand. That is why, near the equator the ocean water is about 8 cm higher in level than in the middle latitudes. This causes a very slight gradient and water tends to flow down the slope.
- Wind blowing on the surface of the ocean pushes the water to move. Friction between the wind and the water surface affects the movement of the water body in its course.
- Gravity tends to pull the water down the pile and create gradient variation.
- The Coriolis force intervenes and causes the water to move to the right in the northern hemisphere and to the left in the southern hemisphere.

Q.99) Consider the following statements with respect to sea surface temperature.

1. The oceans in the northern hemisphere have higher temperature than the ocean in the southern hemispheres.
2. The sea surface temperature is maximum at the equator.

Which of the above statements is/are correct?

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

Q.99) Solution (a)

Basic Information:

The sea surface temperature is influenced by several factors. Prominent among them include.

1. Latitude: The temperature of surface water decreases from the equator towards the poles because the amount of insolation decreases poleward.

2. Unequal distribution of land and water: The oceans in the northern hemisphere receive more heat due to their contact with larger extent of land than the oceans in the southern hemisphere.
3. Prevailing wind: The winds blowing from the land towards the oceans drive warm surface water away from the coast resulting in the upwelling of cold water from below. It results in longitudinal variation in the temperature. Contrary to this, the onshore winds pile up warm water near the coast and this raises the temperature.
4. Ocean currents: Warm ocean currents raise the temperature in cold areas while the cold currents decrease the temperature in warm ocean areas.

Statement Analysis:

Statement 1	Statement 2
Correct	Incorrect
The oceans in the Northern hemisphere have high temperature due to high density of landmass. Influence of land mass is relatively less in the southern hemisphere and hence they have lesser sea surface temperature.	The highest sea surface temperature is recorded at the sub-tropical high pressure belts due to subsidence of air. This produces anticyclonic conditions and clear sky. At the equator the high amount of precipitation and cloudy sky reduces the sea surface temperature.

Q.100) What does the term 'Halocline' refer to?

- a) Line joining points of equal salinity in oceans.
- b) Line joining points of equal temperature in oceans.
- c) Zone representing the sharp increase in the salinity of the ocean water.
- d) Zone representing the sharp decrease in the temperature of the ocean water.

Q.100) Solution (c)**Explanation:**

- Halocline represents the vertical zone in the oceanic water column in which salinity changes rapidly with depth. It is located below the well-mixed uniformly saline surface water layer.
- Salinity generally increases with depth in the ocean waters.
- The lower salinity water rests above the higher salinity dense water.

Q.101) Which among the following are considered active factors in soil formation?

1. Parent material
2. Topography
3. Climate
4. Biological activity
5. Time

Choose the correct option.

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

Q.101) Solution (c)

Basic Information:

- There are five basic factors controlling the formation of soils: (i) parent material; (ii) topography; (iii) climate; (iv) biological activity; (v) time
- Climate and biological activity are considered active agents due to their intensity and influence in soil formation.
- Other factors like topography, parent material and time are passive factors.

NOTE: Only active factors were asked.

Q.102) With respect to the metamorphic rocks consider the following pairs:

<u>Parent rock</u>	<u>Metamorphic rock</u>
1. Limestone	Marble
2. Sandstone	Quartzite
3. Granite	Schist
4. Shale	Clay

Which of the above pairs are correctly matched?

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

Q.102) Solution (b)

Basic Information:

Parent rock	Metamorphic rock
Clay	Slate
Limestone	Marble
Sandstone	Quartzite
Granite	Gneiss
Shale	Schist and slate
Coal	Graphite

Q.103) Consider the following conditions of climate.

1. Average rainfall of 100 cms mostly from the North-East Monsoons in October-December.
2. Mean Annual temperature about 28 degree centigrade.
3. Mean Humidity about 75 percent.

Which of the following forests types grow well in the above mentioned conditions?

- a) Tropical Moist Deciduous Forests.
- b) Swamp Forests.
- c) Tropical Wet Evergreen Forests.
- d) Tropical Dry Evergreen Forests.

Q.103) Solution (d)**Basic Information:**

India's vegetation can be divided into 5 main types and 16 sub-types.

Main Type	Sub Type
Moist Tropical Forests	<ul style="list-style-type: none"> ● Tropical Wet Evergreen ● Tropical Semi-Evergreen ● Tropical Moist Deciduous ● Littoral and Swamp
Dry Tropical Forests	<ul style="list-style-type: none"> ● Tropical Dry Evergreen ● Tropical Dry Deciduous ● Tropical Thorn
Montane Subtropical Forests	<ul style="list-style-type: none"> ● Subtropical Broad Leaved Hill ● Subtropical Moist Hill (Pine) ● Subtropical Dry Evergreen
Montane Temperate Forests	<ul style="list-style-type: none"> ● Montane Wet Temperate ● Himalayan Moist Temperate ● Himalayan Dry Temperate
Alpine Forests	<ul style="list-style-type: none"> ● Sub-Alpine ● Moist Alpine Scrub ● Dry Alpine Scrub

- The Tropical Dry Evergreen Forests are found in the coastal parts of Tamilnadu. Here the annual average rainfall is 100 cms mostly received in the month of October-December from the North-East monsoon winds. The annual average temperature is about 28 degree centigrade and the humidity is 75 percent.

Q.104) Oak, Chestnut and Pine are the trees of which type of forests in India?

- a) Evergreen Forests
- b) Montane forests
- c) Tropical thorn forests
- d) Tropical deciduous forests

Q.104) Solution (b)

Basic Information:

Type of Forest	Tree Types
Tropical Evergreen Forests	Rosewood, Mahogany, Aini, Ebony
Tropical Deciduous Forests	Tendu, mahua, harra, amla, kusum, teak, sal, shisham, sandalwood
Tropical Thorn Forests	Babool, ber, date palm, khair, neem, khejri, palas
Montane forests	Oak, chestnut, chir pine, deodar, chinar, walnut, silver firs, junipers, birch

Q.105) Consider the following statements.

1. Tropical Dry Deciduous Forests occupy the highest percentage of the total forest cover in India.
2. Shola forests are found only in Western Ghats of Karnataka and Kerala.

Which of the following statements is/are correct?

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

Q.105) Solution (a)

Basic Information:

Percentage of forest cover by type of forest. (According to IFSR 2019)

SI No	Type of Forest	Percentage of the total area
1	Tropical Wet Evergreen	2.61
2	Tropical Semi-Evergreen	9.27
3	Tropical Moist Deciduous	17.65
4	Littoral and Swamp	0.73
5	Tropical Dry Evergreen	0.12
6	Tropical Dry Deciduous	40.86
7	Tropical Thorn	2.72

- Sholas are the local name for patches of stunted tropical montane forest found in valleys amid rolling grassland in the higher montane regions of South India. These patches of shola forest are found mainly in the valleys and are usually separated from one another by undulating montane grassland.

Statement Analysis:

Statement 1	Statement 2
Correct	Incorrect
Tropical Dry Deciduous Forest occupies around 40.86 percent of the total forest area in the country which is the highest	Shola forests are found in the higher elevation hill regions of the Nilgiris, Anaimalai, Munnar, Palni hills, Meghamalai, Agasthyamalai to the south and the Malnad

compared to all other forest types.

and associated ranges in parts of Wayanad, Coorg, Baba Budangiri and Kudremukh up the north, in the states of Karnataka, Kerala and Tamil Nadu.

Q.106) Which of the following regions in India have the combination of Mangrove Forests, Evergreen forests and Deciduous forests?

- a) Saurashtra
- b) West Bengal.
- c) Coastal Odisha
- d) Andaman and Nicobar Islands.

Q.106) Solution (d)

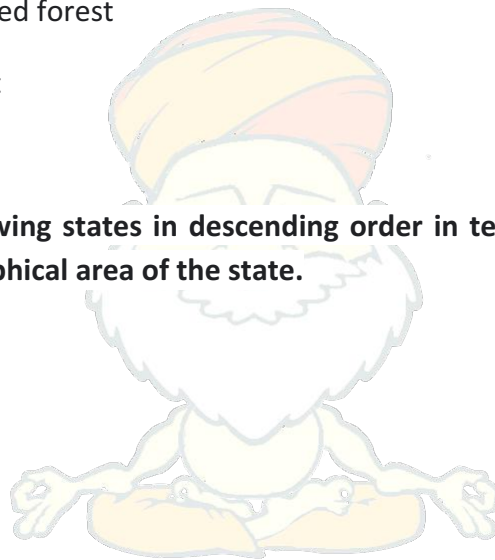
Basic Information:

- The Andaman and Nicobar Islands have a tropical rainforest canopy, made of a mixed flora with elements from Indian, Myanmar, Malaysian and endemic floral types.
- The South Andaman forests have a profuse growth of epiphytic vegetation, mostly ferns, and orchids.
- The Middle Andamans harbours mostly moist deciduous forests.
- North Andamans is characterised by the wet evergreen type, with plenty of woody climbers. The North Nicobar Islands are marked by the complete absence of evergreen forests, while such forests form the dominant vegetation in the central and southern islands of the Nicobar group.
- Grasslands occur only in the Nicobars, and while deciduous forests are common in the Andamans, they are almost absent in the Nicobars.
- The present forest coverage is claimed to be 86.2% of the total land area.
- The forest coverage is made up of 12 types namely :
 1. Giant evergreen forest

2. Andamans tropical evergreen forest
3. Southern hilltop tropical evergreen forest
4. Canebrakes
5. Wet bamboo brakes
6. Andamans semi-evergreen forest
7. Andamans moist deciduous forest
8. Andamans secondary moist deciduous forest
9. Littoral forest
10. Mangrove forest
11. Brackish water mixed forest
12. Submontane forest

Q.107) Arrange the following states in descending order in terms of their percentage of forest to the total geographical area of the state.

1. Arunachal Pradesh
2. Mizoram
3. Manipur
4. Meghalaya



Choose the correct option:

- a) 2-1-4-3
- b) 2-1-3-4
- c) 1-2-4-3
- d) 1-2-3-4

Q.107) Solution (a)

Basic Information:

As per the Forest Survey of India report, the states and union territories with maximum percentage of forest cover to the geographical area are as follows.

Area-wise Madhya Pradesh has the largest forest cover in the country followed by Arunachal Pradesh, Chhattisgarh, Odisha and Maharashtra. In terms of forest cover as percentage of total geographical area, the top five States are Mizoram (85.41%), Arunachal Pradesh (79.63%), Meghalaya (76.33%), Manipur (75.46%) and Nagaland (75.31%).

Q.108) Consider the following statements with respect to the minor forest produce.

1. Madhya Pradesh is the largest producer of tendu leaves in India.
2. Sabai is the most important raw material for the paper industry.

Which of the above statements is/are correct?

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

Q.108) Solution (c)

Basic Information:

Tendu Leave:

- Tendu is the most important type of forest leaf used as wrappers for bidis. The tendu leaves grow in large numbers in Madhya Pradesh, Andhra Pradesh, Telangana, Bihar, Maharashtra, Gujarat, Rajasthan, Karnataka and Uttar Pradesh.
- Madhya Pradesh is the largest producer of tendu leaves in India followed by Bihar, Andhra Pradesh, Telangana and Maharashtra.

Sabai Grass:

- Grasses like Sabai, Bhabar and elephant are used for paper making.
- Sabai is the most important grass which provides the basic raw material for the paper industry.
- It is a perennial grass which grows on the bare slopes of the sub-himalayan tract and in Bihar, Odisha, West Bengal, Madhya Pradesh and western parts of Himachal Pradesh.

Q.109) Which of the following pairs are correctly matched?

<u>Institute Name</u>	<u>Place</u>
1. Institute of Arid Zone Forestry Research	Jodhpur
2. Institute of Rain and Moist Deciduous Forests	Jorhat
3. Forest Research Institute	Dehradun
4. Tropical Forestry Research Institute	Bengaluru

Choose the correct option:

- a) 1 and 2
- b) 2 and 3
- c) 1, 2, and 3
- d) All of the above.

Q.109) Solution (c)

Basic Information:

Institute Name	Place
Institute of Arid Zone Forestry Research	Jodhpur
Institute of Rain and Moist Deciduous Forests	Jorhat
Forest Research Institute	Dehradun
Tropical Forestry Research Institute	Jabalpur
Institute of Wood Science and Technology	Bengaluru
Institute of Forest Genetics and Tree Breeding	Coimbatore
Temperate Forest Research Centre	Shimla
Centre for Forest Productivity	Ranchi
Centre for Social Forestry and Environment	Allahabad

Q.110) With respect to the sacred groves in India, which of the following pairs are correctly matched?

<u>Sacred Grove Local Name</u>	<u>State</u>
1. Devarakadu	Karnataka
2. Kavu	Kerala
3. Umang lai	Meghalaya
4. Mandar	Chhattisgarh

Choose the correct option:

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

Q.110) Solution (d)

Basic Information:

State	Local Name of Sacred Grove
Andhra Pradesh	Pavitrakshetralu
Arunachal Pradesh	Gumpa Forests
Assam	Than, Madaico
Chhattisgarh	Sarna, Mandar, Devlas, Budhadev
Haryana	Bani, Shamlat, Janglat
Himachal Pradesh	Dev Kothi, Devban
Jharkhand	Sarna

Karnataka	Devarakadu, Devkad
Kerala	Kavu
Manipur	Umang Lai
Meghalaya	Law Kyntang, Law lyngdoh
Orissa	Jahera, Thakuramma
Puducherry	Kovil kadu
Uttarakhand	DevBhumi
West bengal	Garamthan, Harithan, Jahera, Sabitrithan, Santalburithan.

Q.111) Consider the following statements with respect to the protected area network in India.

1. Only the Central government can notify the national parks in India.
2. Wildlife sanctuaries boundaries are not fixed by legislation in India
3. National Parks are primarily focused on a particular species in India.

Which of the above statements is/are correct?

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

Q.111) Solution (a)

Basic Information:

National Parks:

- An area, whether within a sanctuary or not, can be notified by the state government to be constituted as a National Park, by reason of its ecological, faunal, floral, geomorphological, or zoological association or importance, needed to for the purpose of protecting & propagating or developing wildlife therein or its environment.
- No human activity is permitted inside the national park except for the ones permitted by the Chief Wildlife Warden of the state under the conditions given in CHAPTER IV, WPA 1972.
- There are 104 existing national parks in India covering an area of 40501.13 km², which is 1.23% of the geographical area of the country (National Wildlife Database, May, 2019).

Wildlife Sanctuary:

- Any area other than an area comprising any reserve forest or the territorial waters can be notified by the State Government to constitute as a sanctuary if such area is of adequate ecological, faunal, floral, geomorphological, natural. or zoological significance, for the purpose of protecting, propagating or developing wildlife or its environment.
- Some restricted human activities are allowed inside the Sanctuary area details of which are given in CHAPTER IV, WPA 1972.
- There are 551 existing wildlife sanctuaries in India covering an area of 119775.80 km², which is 3.64 % of the geographical area of the country (National Wildlife Database, May, 2019).

Biosphere Reserves:

- Biosphere reserves are sites established by countries and recognized under UNESCO's Man and the Biosphere (MAB) Programme to promote sustainable development based on local community efforts and sound science.
- The programme of Biosphere Reserve was initiated by UNESCO in 1971.
- The purpose of the formation of the biosphere reserve is to conserve in situ all forms of life, along with its support system, in its totality, so that it could serve as a referral system for monitoring and evaluating changes in natural ecosystems.
- Presently, there are 18 notified biosphere reserves in India.

Statement Analysis:

Statement 1	Statement 2	Statement 3
-------------	-------------	-------------

Incorrect	Correct	Incorrect
In India, state governments notify the formation of National parks. Under special circumstances central government too notify the National parks.	Unlike National parks and biosphere reserves, the boundaries of wildlife sanctuary are not sacrosanct or fixed.	National parks are not necessarily focused on the conservation of particular species. Rather wildlife sanctuaries are dedicated for protection and conservation of particular species.

Q.112) Which of the following countries is the largest producer of wood pulp in the world?

- a) USA
- b) Brazil
- c) Canada
- d) Argentina



Q.112) Solution (c)

Basic Information:

- Wood pulp is the basic raw material for the paper industry.
- The timber resources used to make wood pulp are referred to as pulpwood.
- Coniferous trees are preferred for making wood pulp because the cellulose fibers in the pulp of these species are longer, and therefore make stronger paper.
- Some of the most commonly used softwood trees for paper making include spruce, pine, fir, larch and hemlock, and hardwoods such as eucalyptus, aspen and birch.
- Canada is the largest producer of wood pulp globally due to the presence of large areas of coniferous forests in the country.

Q.113) Arrange the following soil groups in the order of their land area coverage starting from the highest to the lowest in India.

1. Laterite soil
2. Black Soil
3. Alluvial Soil.
4. Red soil.

Choose the correct option:

- a) 3-2-4-1
- b) 3-4-2-1
- c) 3-2-1-4
- d) 3-1-2-4

Q.113) Solution (b)

Basic Information:

The Indian Council of Agricultural Research has divided soils in India into eight major groups.

Soil groups by percentage of area are provided below.

Major Soil Group	Percentage of land area
Alluvial Soil	45.6
Red Soil	18.6
Black Soil	16.6
Laterite Soil	7.26
Forest and Mountain soil	8.67
Arid and desert soil	4.32

Q.114) 'Usar', 'Kallar', 'thur' and 'rakar' are local names given to which of the following soil groups?

- a) Saline and Alkaline soil
- b) Peaty and marshy Soil.
- c) Laterite soil
- d) Desert soil

Q.114) Solution (a)**Basic Information:**

- Saline and Alkaline soils are found in Andhra Pradesh, Telangana and karnataka. These are also found in the drier parts of Bihar, Uttar Pradesh, Haryana, Punjab and Maharashtra.
- These soils are known by different names locally like 'Reh', 'Kallar', 'Usar', 'Thur', 'Rakar', 'Karl' and 'Chopan'.
- The accumulation of these salts and alkali materials makes soil infertile and renders it unfit for agriculture.

Q.115) The old and new alluvial deposits of the northern plains are called by which names respectively?

- a) Khadar and Bhangar
- b) Bhangar and Khadar
- c) Bhabar and Tarai
- d) Tarai and Khadar

**Q.115) Solution (b)****Basic Information:**

- The northern plains are formed by the alluvial plains brought down by the rivers like Indus, ganga and Brahmaputra.
- The plains are divided into Bhabar, tarai and alluvial plains. The alluvial plains are further divided into Khadar (New deposits) and Bhangar (Old Deposits).
- Bhabar is a narrow belt ranging between 8-10 kms parallel to the Shiwalik Foothills at the break up of the slope.
- Tarai is a marshy, swampy belt below the Bhabar belt.
- South of Tarai are the alluvial plains consisting of Old deposits (Bhangar) and new deposits (Khadar).

Q.116) Consider the following statements with respect to the composition of soils in India.

1. Red soils are rich in potash but poor in lime and nitrogen.
2. The porosity of alluvial soil helps in good agriculture production.
3. Black soil is highly argillaceous with large clay content.

Which among the above statements is/are correct?

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

Q.116) Solution (d)

Basic Information:

Characteristics of major soils in India:

Alluvial Soils:

- They are immature and have weak profiles due to their recent origin.
- Most of the soil is Sandy and clayey soils are not uncommon.
- The soil is porous because of its loamy (equal proportion of sand and clay) nature.
- Porosity and texture provide good drainage and other conditions favorable for agriculture.
- The proportion of nitrogen is generally low.
- The proportion of Potash, phosphoric acid and alkalis are adequate.

Black Soils:

- Black soil is highly argillaceous [Geology (of rocks or sediment) consisting of or containing clay] with a large clay factor, 62 per cent or more.
- The black soil is highly retentive of moisture.
- 10 percent of alumina,
- 9-10 percent of iron oxide,
- 6-8 percent of lime and magnesium carbonates,
- Potash is variable (less than 0.5 per cent) and
- phosphates, nitrogen and humus are low.

Red Soils:

- The colour is mainly due to the diffusion of the ferric oxide.
- It is deficient in lime, phosphate, manganese, nitrogen, humus.
- Rich in potash.
- Texture is sandy to clay and loamy.

Laterite soils:

- Formed due to the leaching process.

- It is rich in Iron and Aluminum.
- But deficient in Nitrogen, Potash, Potassium, Lime, Humus.

Statement Analysis:

Statement 1	Statement 2	Statement 3
Correct	Correct	Correct
Red soils are rich in potash but poor in lime and magnesia	It is due to the porosity and good texture that makes the alluvial soil good for agriculture	The high argillaceous nature and clay content of the black soil makes it highly water retentive.

Q.117) Consider the following pairs with respect to coal fields in India.

<u>Coal field</u>	<u>State</u>
1. Korba	Jharkhand.
2. Raniganj	Chhattisgarh
3. Bokaro	Jharkhand
4. Talcher	Orissa.

Which of the above is/are correctly matched?

- 1 only
- 1 and 2
- 3 and 4
- 1, 3 and 4

Q.117) Solution (c)

Basic Information:

State	Coalfield
West Bengal	Ranigunj

Chhattisgarh	Korba, Hasdeo-Arand, Sonhat, Jhilmil
Jharkhand	Dhanbad, Ramgarh, Daltonganj, Jharia, Bokaro, Giridih, Karanpura.
Madhya Pradesh	Singrauli, Umaria, Satpura, Johila
Andhra Pradesh	Singareni, Katanpalli
Tamilnadu	Neyveli
Odisha	Talcher, Himgiri, Rampur
Assam	Makum, Najira, Janji

Q.118) Consider the following statements with respect to non-conventional sources of energy.

1. In India, shale gas reserves are found in Krishna-Godavari basin and Cambay basin only.
2. In India, Natural Gas hydrates are found in Krishna-Godavari basin only.

Which of the above statements is/are correct?

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

Q.118) Solution (d)

Basic Information:

Shale Gas:

- Shale gas is found in unconventional reservoirs typically trapped in shale rock, having low permeability, originally deposited as clay and silt.

- The technique used for shale gas production requires first drilling a vertical well to the targeted rock followed by horizontal drilling exposing the well to more of producing shale. This process is called Hydraulic Fracturing or Fracking, in which water, chemicals and sand are pumped at high pressure into the well to unlock the gas trapped in shale rocks by opening cracks or fractures in the rock and allowing gas to flow from shale into the well and onto the surface.
- Shale gas is cleaner burning than coal and crude oil. The combustion of shale gas emits significantly lower levels of key pollutants including carbon dioxide, nitrogen oxide and sulphur dioxide than the combustion of coal and oil.
- Shale gas resources in India are found in Krishna-Godavari basin, Cambay basin, Cauvery basin, Assam Arakan basin and Gondwana basin.
- The commercial extraction is yet to start.

Natural Gas Hydrate:

- Natural gas hydrates are a mixture of ice-like forms of water and gas in molecular cavities. However, no country in the world has so far developed the technology to produce gas hydrates commercially and economically.
- According to the latest estimates of the US Geological Survey, India has the second largest gas hydrate reserves after America. The Krishna-Godavari (KG), Cauvery and Kerala basins alone contribute 100-130 trillion cubic feet of estimated reserves.

Q.119) Which of the following Nuclear Power Plants are correctly matched with their location?

<u>Nuclear Power Plants</u>	<u>State</u>
1. Kakrapar	Gujarat
2. Kouvada	Kerala
3. Jaitapur	Maharashtra
4. Mithi Viridi	Maharashtra

Choose the correct option:

- 1 and 3 only
- 1 and 4 only
- 1 and 2 only
- All of the above.

Q.119) Solution (a)**Basic Information:****List of Nuclear Power Plants in India**

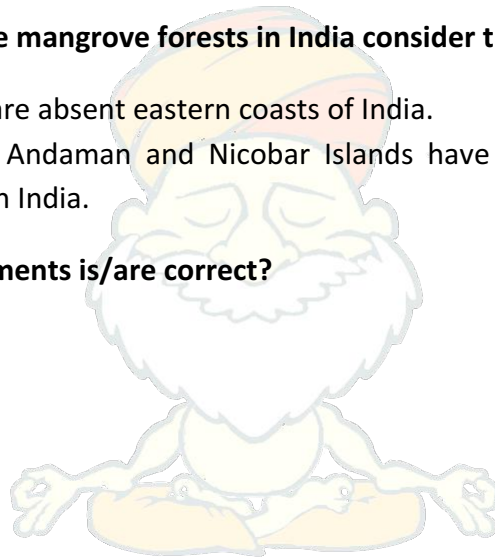
1. Rawatbhata in Rajasthan
2. Kakrapar and Mithi Virdi in Gujarat
3. Tarapur and Jaitapur in Maharashtra
4. Kaiga in Karnataka
5. Kalpakkam and Kudankulam in Tamil Nadu
6. Kovvada in Andhra Pradesh
7. Haripur in West Bengal
8. Narora in Uttar Pradesh

Q.120) With respect to the mangrove forests in India consider the following statements.

1. Mangrove forests are absent eastern coasts of India.
2. After Sunderbans, Andaman and Nicobar Islands have the highest percentage of mangrove forests in India.

Which of the above statements is/are correct?

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

**Q.120) Solution (d)****Basic Information:****Mangrove Forests:**

- A mangrove is a shrub or small tree that grows in coastal saline or brackish water.
- Mangroves are salt-tolerant trees, also called halophytes, and are adapted to life in harsh coastal conditions.
- They contain a complex salt filtration system and complex root system to cope with salt water immersion and wave action. They are adapted to the low oxygen conditions of waterlogged mud.
- They are typically evergreen land plants growing on sheltered shores, typically on tidal flats, deltas, estuaries, bays and creeks.
- The best locations are where abundant silt is available.

- Their physiological adaptation to salinity stress and to water logged anaerobic mud is high.
- It produces pneumatophores (blind roots) to overcome respiratory problems in anaerobic soil conditions.
- Mangroves enhance the natural recycling of nutrients.

Statement Analysis:

Statement 1	Statement 2
Incorrect	Incorrect
Mangroves are found in eastern coast too. In Gujarat mangroves like Avicennia marine, Avicennia Officinalis and Rhizophora mucronata are found mainly in the Gulf of Kachchh and the Kori Creek.	The mangroves of Bhitarkanika (orissa) are the second largest after the Sunderbans in West - Bengal.

Q.121) Consider the following statements.

1. Both North India and South India have distinct cropping seasons with respect to crops grown.
2. The cropping intensity and rural employment are directly related to each other in India.

Which of the above statements is/are correct?

- a) 1 only.
- b) 2 only.
- c) 1 and 2.
- d) Neither 1 nor 2.

Q.121) Solution (b)

Basic Information:**Cropping Intensity:**

- Cropping intensity in percentage is defined as $GCA/NSA \times 100$

Where, GCA - Gross Cropped Area and

NSA - Net Sown Area.

Cropping seasons in India:

- There are three distinct crop seasons in the northern and interior parts of the country, namely kharif, rabi and zaid.
- The kharif season largely coincides with Southwest Monsoon under which the cultivation of tropical crops such as rice, cotton, jute, jowar, bajra and tur is possible.
- The rabi season begins with the onset of winter in October-November and ends in March-April. The low temperature conditions during this season facilitate the cultivation of temperate and subtropical crops such as wheat, gram and mustard.
- Zaid is a short duration summer cropping season beginning after harvesting of rabi crops. The cultivation of watermelons, cucumbers, vegetables and fodder crops during this season is done on irrigated lands.

Statement Analysis:

Statement 1	Statement 2
Incorrect	Correct
In southern India distinct cropping seasons based on crops grown is difficult to derive. Because, all throughout the year the temperature is high enough to grow tropical crops given the soil moisture is available. Therefore in these regions same crops can be grown thrice in an agriculture year. Hence the statement is incorrect.	For a land scarce and labour abundant country like India higher cropping intensity leads to generation of higher rural employment in the agriculture sector. Therefore there is a direct relation between cropping season and rural employment in India.

Q.122) Consider the following statements with respect to rice production in India.

1. Rice is grown only in the Kharif and Rabi season in India.
2. 'Aus', 'Aman' and 'Boro' are three crops of rice grown in the North Eastern region in India.

Which of the above statements is/are correct?

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

Q.122) Solution (d)

Basic Information:

- Rice is a staple food for the overwhelming majority of the population in India.
- Though it is considered to be a crop of tropical humid areas, it has about 3,000 varieties which are grown in different agro-climatic regions.
- The world's largest rice producers by far are China and India.
- About one-fourth of the total cropped area in the country is under rice cultivation.
- West-Bengal, Uttar Pradesh, Punjab states are leading rice producers in India.

Statement Analysis:

Statement 1	Statement 2
Incorrect	Incorrect
Some parts of India grow rice in all three cropping seasons. Hence statement is incorrect	'Aus', 'Aman' and 'Boro' are three crops of rice grown in the state of West-Bengal.

Q.123) Which among the following are the local names of shifting cultivation practiced in India?

1. Chena
2. Kumari
3. Jhumming
4. Milpa

Choose the correct option:

- a) 1 and 4 only

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

Q.123) Solution (b)

Basic Information:

Shifting Cultivation	Country
Ladang	Indonesia
Jhumming, Jhum, Vevar, Dahiyaar, Deepa, Zara, Erka, Batra, Podu, Kumari, Kaman, Vinga and Dhavi	India
Chena	Sri lanka
Roca	Brazil.
Ray	Vietnam
Milpa	Mexico
Conuco	Venezuela
Tamrai	Thailand
Taungya	Myanmar

Q.124) With respect to Coffee production in India consider the following statements.

1. India mostly grows superior quality coffee called Arabica.
2. Kerala is the leading producer of coffee in India.

Which of the above statements is/are correct?

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

Q.124) Solution (a)**Basic Information:**

- Coffee is a tropical plantation crop.
- Its seeds are roasted, ground and are used for preparing a beverage.
- There are three varieties of coffee i.e. arabica, robusta and liberica
- India ranks seventh in the world in coffee production. Brazil is the leading producer of coffee in the world.

Statement Analysis:

Statement 1	Statement 2
Correct	Incorrect
India produces three varieties of coffee - Arabica, robusta and liberica. Arabica is the superior quality coffee which India grows in large quantities.	Karnataka is the leading producer of Coffee in India.

Q.125) “This crop requires plenty of heat, plenty of rain, plenty of alluvium and plenty of labour to grow in India”

To which crop are we referring to here?

- a) Wheat
- b) Cotton
- c) Rice
- d) Sugarcane.

Q.125) Solution (c)

Explanation:

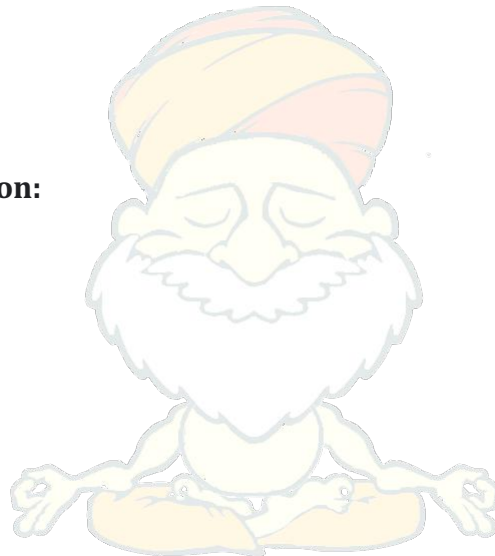
- Rice is grown under varying climatic conditions in India from 8 degree to 30 degree north latitude and from sea level to about 2500 metre altitude.
- The temperature should be fairly high at a mean monthly of 24 degree centigrade. It should be 20-22 degree at the time of sowing, 23-25 degree during growth and 25-30 degree during harvesting.
- The average rainfall required for rice is 150 cm.
- Rice grows well on a variety of soils including silts, loams and gravels. It is dominantly a crop of river valley, flood plains, deltas and coastal plains where alluvium soil is found.

Q.126) Which among the following are the millets grown in India?

1. Haraka
2. Rajgira
3. Korra
4. Kutki

Choose the correct option:

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

**Q.126) Solution (d)****Basic Information:**

- Millets are short duration (3-4 months) warm weather grasses grown in those inferior areas where main food crops like rice and wheat cannot be successfully grown.
- In India jowar, bajra, ragi, korra, kodo, kutki, sanwa, haraka, varagu, bauti and rajgira are few important millets grown.

Q.127) Consider the following factors influencing industrial locations:

1. Government Policy
2. Access to Market

3. Access to Transportation and Communication Facilities
4. Access to Agglomeration Economies

Which of the factors given above is/are correct?

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

Q.127) Solution (d)

Basic Information:

Industries maximise profits by reducing costs. Therefore, industries should be located at points where the production costs are minimum. Some of the factors influencing industrial locations are as under:

- Access to Market
- Access to Raw Material
- Access to Labour Supply
- Access to Transportation and Communication Facilities
- Government Policy
- Access to Agglomeration Economies/ Links between Industries

Q.128) Consider the following statements with regard to footloose industries:

1. The product cost varies spatially in footloose industries.
2. They are not dependent on any specific raw material.

Which of the above statements is/are correct?

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

Q.128) Solution (b)

Basic Information:

- Footloose industry is a general term for an industry that can be placed and located at any location without effect from factors such as resources or transport.
- These industries often have spatially fixed costs which means that the costs of the products do not change despite where the product is assembled.
- These industries can be located at a wide variety of places, as these are not weight-losing nor raw-material-specific.
- They produce in relatively small quantities employing smaller workforces and are considered to be more efficient from an ecological point of view.
- These are generally not polluting industries.
- Examples include Diamonds and computer chips

Statement Analysis:

Statement 1	Statement 2
Incorrect	Correct
The product cost is fixed. It doesn't vary spatially	They are not raw material specific. Raw materials can be procured from anywhere other than the place of production.

Q.129) "Cool Climate with moderate rainfall, flat and well drained plain areas, fertile friable loam and heavy inputs in the form of irrigation, high yielding varieties seeds, fertilizers and mechanisation"

Above description is most suitable for which kind of crop in India?

- Rice
- Maize
- Jowar
- Wheat

Q.129) Solution (d)

Basic Information:

- Wheat is the most important foodgrain in India after rice.
- Wheat is a rabi crop sown in the beginning of winter season and is harvested in the beginning of summer.

- The ideal wheat climate has winter temperature 10-15 degree centigrade and summer temperature varying from 21-25 degree centigrade.
- It thrives well in areas receiving annual rainfall of 75 cms.
- Soil should be loamy.
- In parts of Punjab, Haryana and Uttar pradesh high yielding variety seeds are used with adoption of mechanisation.

Q.130) Which among the following is known as “Black Ore”?

- Magnetite
- Haematite
- Limonite
- Siderite

Q.130) Solution (a)

Basic Information:

- Magnetite is a rock mineral and one of the main iron ores, with the chemical formula Fe_3O_4 . It is one of the oxides of iron, and is ferrimagnetic.
- It is attracted to a magnet and can be magnetized to become a permanent magnet itself.
- It is the most magnetic of all the naturally-occurring minerals on Earth.
- It is known as “Black Ore” due to the blackish colour it possesses.

Q.131) Consider the following descriptions of a mineral found in India:

1. It forms when laterite soils are severely leached of silica and other soluble materials in a wet tropical or subtropical climate.
2. In India, Odisha is the leading producing state.
3. It is a sedimentary rock with high aluminium content.

Which of the following minerals is described in the above statements?

- Iron
- Copper
- Bauxite
- Manganese.

Q.131) Solution (c)

Basic Information:

- Bauxite is a rock formed from a reddish clay material called laterite soil and is most commonly found in tropical or subtropical regions.
- Bauxite consists primarily of aluminum oxide compounds (alumina), silica, iron oxides and titanium dioxide.
- Bauxite is a sedimentary rock with a relatively high aluminium content.
- Bauxite is found mainly in tertiary deposits and is associated with laterite rocks occurring extensively either on the plateau or hill ranges of peninsular India and also in the coastal tracts of the country.
- Odisha is the leading producing state accounting for about 51% of the total production during 2018. The main deposits occur in Kalahandi, Koraput, Bolangir, Sundargarh and Sambalpur districts. The smelting plants have been developed at Damanjodi and Doragurha.
- Jharkhand ranks second in bauxite deposit where Palamau, Lohardaga, Ranchi and Monghyr districts contain some prestigious bauxite mines.

Q.132) Consider the following statements:

1. It is known as 'Abhrak'
2. Its insulating properties have made it a valuable mineral in electrical and electronics industry.
3. Muscovite, Phlogopite and Biotite are three major types found in India.

Which of the following minerals is described above?

- a) Dolomite
- b) Asbestos
- c) Mica
- d) Sillimanite

Q.132) Solution (c)**Basic Information:**

- Mica is a silicate mineral known as sheet silicates because it forms in distinct layers.
- Micas are fairly light and relatively soft and the sheets and flakes of mica are flexible.
- Mica is heat-resistant and does not conduct electricity.
- Mica has been used in India since ancient times as a medicinal item in ayurveda and is known as 'Abhrak'.

- Its insulating properties have made it an invaluable mineral in the electrical and electronics industry. It can withstand high voltage and has low power loss factor.
- In India, Muscovite, Phlogopite and Biotite are the three major types found.

Q.133) Consider the following statements:

1. Cement industry is the largest consumer of iron ore in India next to the Iron and Steel industry.
2. India is the world's largest producer of sponge iron.

Which of the above statements is/are correct?

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

Q.133) Solution (c)

Basic Information:

- India is one of the leading producers of iron ore in the world.
- Haematite, Magnetite, Limonite and siderite are the four major varieties of iron ore in India.
- Haematite is the best quality iron ore with about 70 percent of metallic content.
- Orissa is the leading producer of Iron ore in India.

Statement Analysis:

Statement 1	Statement 2
Correct	Correct
<p>Among the consuming industries, Cement Industry is the second major consumer of iron ore after the Iron & Steel Industry (including Sponge Iron Industry).</p> <p>Generally low grade iron ore is used in the manufacture of cement. Iron ore improves the burning properties of cement. It imparts colour and also</p>	<p>India is the world's largest producer of sponge iron or Direct Induced Iron (DRI) with a host of coal-based units located in the mineral-rich States of the country.</p>

balances the composition of cement.	
-------------------------------------	--

Q.134) Consider the following statements with respect to coal reserves in India:

1. Gondwana rocks contain about 98 percent of coal reserves of India.
2. Lignite known as brown coal is the lowest quality coal found.

Which of the above statements is/are correct?

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

Q.134) Solution (a)

Basic Information:

- Coal is a combustible black or brownish-black sedimentary rock, formed as rock strata called coal seams.
- Coal is mostly carbon with variable amounts of other elements; chiefly hydrogen, sulphur, oxygen, and nitrogen.
- Coal is formed when dead plant matter decays into peat and is converted into coal by the heat and pressure of deep burial over millions of years.
- Depending upon its grade from highest to lowest coal is divided into Anthracite coal (Best quality), Bituminous coal, Lignite coal and peat.

Statement Analysis:

Statement 1	Statement 2
Correct	Incorrect
Economically Gondwana rocks are significant because over 98 percent of the coal reserves of India belong to this rock system	Peat is the lowest grade coal found.

Q.135) Consider the following services:

1. Radio service.
2. Real estate
3. Advisory and Consultant
4. Retail trade
5. Inland water transport.

Which of the above is/are tertiary sector activities?

Choose the correct option:

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

Q.135) Solution (b)

Basic Information:

Tertiary Sector Activities:

- Tertiary activities include both production and exchange. The production involves the 'provision' of services that are 'consumed'.
- Tertiary activities, therefore, involve the commercial output of services rather than the production of tangible goods. They are not directly involved in the processing of physical raw materials.
- Common examples are the work of a plumber, electrician, technician, launderer, barber, shopkeeper, driver, cashier, teacher, doctor, lawyer and publisher etc.

Tertiary activities broadly include:

- Trade and Commerce: Wholesale and retail trade
- Transport: Rail, road, water, airways
- Communication
- Financial and other services: Insurance, Real estate, etc.

Note: Consultant is a Quinary activity. Other such activities are Specialists, Decision makers, Policy formulators.

Q.136) Which of the following are the problems faced by the jute industry in India?

1. Inadequate supply of raw materials.
2. Obsolete machinery
3. Competition from substitutes.

Choose the correct option:

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

Q.136) Solution (d)

Basic Information:

- Jute is the second largest textile industry in India after the cotton textile industry.
- It is one of the major industries in the eastern region particularly West Bengal.
- It is known as golden fibre.
- The main problems being faced by the Jute industry are the following:
 1. Inadequate supply of raw materials- After independence, 70 percent of the jute producing areas went to Bangladesh. Thus, the jute industry suffers from inadequate supply of raw jute.
 2. Competition from substitutes- Paper, plastics, cloth and hemp have emerged as substitutes and are available at cheaper rates in the world market.
 3. Obsolete machinery- Many jute mills are uneconomical because of outdated machinery.

Q.137) Which of the following crops are considered as Rabi crops in India?

1. Wheat
2. Rapeseed
3. Cotton
4. Mustard.

Choose the correct option:

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

d) 1, 2, 3 and 4

Q.137) Solution (c)

Basic Information:

Cropping Season	Northern states	Southern States
Kharif	Paddy, Cotton, Bajra, Maize, Jowar, Tur	Paddy, Maize, Ragi, Jowar, Groundnut
Rabi	Wheat, Gram, Rapeseed, Mustard	Paddy, Maize, Ragi, Groundnut, Jowar
Zaid	Vegetables, Fruits	Paddy, Vegetables and fruits

Q.138) Consider the following statements with respect to Silk Industry in India:

1. India is the largest producer of raw silk in the world.
2. More than two-third of silk produced in India is Mulberry silk.
3. Muga silk is exclusively found in Assam region

Which of the above statements is/are correct?

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

Q.138) Solution (c)

Basic Information:

- India is well known for silk production since ancient times.
- India is the only country in the world producing all five varieties of silk viz. Mulberry, Tropical Tasar, Oak Tasar, Eri and Muga.
- Karnataka is the leading producer of silk in India.

Statement Analysis:

Statement 1	Statement 2	Statement 3
Incorrect	Correct	Correct
China is the largest producer of raw silk in the world. India is the second largest producer.	More than 80 percent of silk produced in India is Mulberry silk.	Muga silk also known as golden silk is found exclusively in Assam region.

Q. 139) Which of the following pairs is/are correctly matched?

Steel Plant

1. Rourkela Steel plant
2. Bhilai Steel Plant
3. Durgapur Steel Plant
4. Bokaro Steel Plant

Collaboration with

1. Germany.
2. Russia.
3. Russia.
4. United Kingdom.

Choose the correct option:

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



Q.139) Solution (a)

Basic Information:

- After independence, during the Second Five Year Plan (1956-61), new integrated steel plants were set up with foreign collaboration. They include.
 1. Rourkela Steel Plant with Germany Collaboration.
 2. Bhilai Steel Plant with Russian collaboration.
 3. Durgapur Steel Plant with United Kingdom
 4. Bokaro Steel Plant with Russia.

Q.140) Which of the following pairs is/are correctly matched?

<u>Rail Factory</u>	<u>Location</u>
1. The Integral Coach Factory	Perambur
2. Bharat Earth Movers	Pune
3. Rail Coach Factory	Bengaluru
4. Rail Wheel Factory	Kapurthala

Choose the correct option:

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

Q.140) Solution (a)

Basic Information:

Major railway equipment manufacturing industries and their location:

Industry	Location
Chittaranjan Locomotives Works	Burdwan district of West Bengal
Diesel Locomotive works	Varanasi
Tata Engineering and Locomotive works	Jamshedpur
Integral coach factory	Perambur, Chennai
Modern Integral coach factory	Rae Bareli
Bharat Earth Movers Limited	Bengaluru
Rail Coach Factory	Kapurthala
Rail Wheel Factory	Bengaluru.

Q.141) Mundari and Santhali are part of which family of languages in India?

- a) Austric (Nishada)
- b) Dravidian
- c) Indo-European (Aryan)
- d) Sino-Tibetan (Kirata)

Q.141) Solution (a)**Explanation:**

The speakers of major Indian languages belong to four language families:

Language Family	Languages
Indo-European Family (Aryan)	Hindi, Bengali, Marathi, Urdu, Gujarati, Punjabi, Kashmiri, Rajasthani, Sindhi, Maithili and Odia
Dravidian Family (Dravida),	Kannada, Tamil, Telugu, Malayalam
Austric Family (Nishada)	Kol, Mundari, Nicobari, Khasi, Santhali, Ho, Birhor.
Sino-Tibetan family (Kirata)	Nepalese, Bodo, Manipuri

Q.142) Which among the following are push factors for migration?

1. Epidemic
2. Peace and stability.
3. Unemployment.
4. Unfavourable climate.

Choose the correct option:

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

Q.142) Solution (c)

Explanation:

People migrate for a better economic and social life. There are two sets of factors that influence migration.

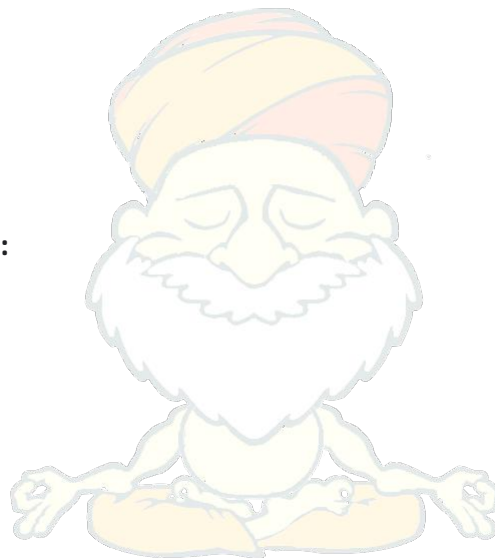
1. **The Push factors** make the place of origin seem less attractive for reasons like unemployment, poor living conditions, political turmoil, unpleasant climate, natural disasters, epidemics and socio-economic backwardness.
2. **The Pull factors** make the place of destination seem more attractive than the place of origin for reasons like better job opportunities and living conditions, peace and stability, security of life and property and pleasant climate.

Q.143) Which of the following factors determine the shape and structure of rural settlements?

1. Water Availability.
2. Cultural factors.
3. Security.
4. Local temperature

Choose the correct option:

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



Q.143) Solution (d)

Explanation:

- Rural settlements in India can broadly be put into four types:
 1. Clustered, agglomerated or nucleated,
 2. Semi-clustered or fragmented,
 3. Hamleted, and
 4. Dispersed or isolated

- There are various factors and conditions responsible for having different shapes and patterns of rural settlements in India. These include:
 1. Physical features – nature of terrain, altitude, climate and availability of water
 2. Cultural and ethnic factors – social structure, caste and religion
 3. Security factors – defence against thefts and robberies.

Q.144) Consider the following statements with respect to population growth in India.

1. The year 1921 is called as “Demographic Divide” in the demographic history of India.
2. Period between 1951-1981 is known as the period of population explosion.

Which of the above statements is/are correct?

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

Q.144) Solution (c)

Basic Information:

- The demographic history of India can be charted and classified into following four distinct phases.
 1. Period of Stagnant Population (1901-1921)
 2. Period of steady growth (1921-1951)
 3. Period of rapid growth (1951-1981)
 4. Period of High Growth with definite signs of slowing down (1981-2011)

1. **Period of Stagnant Population (1901-1921):** In this period growth rate was very low, even recording a negative growth rate during 1911-1921. Poor health and medical services, illiteracy of people at large and inefficient distribution system of food and other basic necessities were largely responsible for a high birth and death rates in this period.

2. **Period of Steady Growth (1921-1951):** An overall improvement in health and sanitation throughout the country brought down the mortality rate. The crude birth rate remained high in this period leading to higher growth rate than the previous

phase. This is impressive in the backdrop of the Great Economic Depression, 1920s and World War II.

3. **Period of Rapid Growth (1951-1981):** The period of population explosion in India, was caused by a rapid fall in the mortality rate but a high fertility rate of population in the country. The average annual growth rate was as high as 2.2 per cent. It is in this period, after Independence, that developmental activities were introduced through a centralised planning process and the economy started showing up ensuring the improvement of the living condition of people at large. Besides, increased international migration bringing in Tibetans, Bangladeshis, Nepalis and even people from Pakistan contributed to the high growth rate.
4. **Period of High Growth with definite signs of slowing down (post 1981 till present):** A downward trend of crude birth rate is held responsible for such a population growth. This was, in turn, affected by an increase in the mean age at marriage, improved quality of life particularly education of females in the country.

Statement Analysis:

Statement 1	Statement 2
Correct	Correct
The population growth during the period 1901-21 can be termed as stagnant. The high birth rate was counterbalanced by a high death rate. The progressive growth rate in 1921 over 1901 was only 5.42 percent. The census year 1921 registered a negative growth rate of minus 0.31percent and it happened only once in the demographic history of India. It is because of this reason 1921 is called “Demographic Divide” in the demographic history of India.	After 1951, there was a steep fall in the mortality rate but the fertility remained stubbornly high. Therefore this period experienced a very high rate of population growth and is often referred to as the period of population explosion.

Q.145) With respect to the composition of the working population in the country, consider the following statements.

1. The work participation rate tends to be higher in the areas of higher levels of economic development.
2. About 54.6 percent of the total working population in the country are cultivators and agricultural laborers.

Which of the above statements is/are correct?

- a) 1 only
- b) 2 only
- c) 1 and 2
- d) None of the above.

Q.145) Solution (b)

Basic Information:



- As per the Census 2001, the Indian workforce is over 400 million strong, which constitutes 39.1 percent of the total population of the country. The workers comprise 312 million main workers and 88 million marginal workers (i.e., those who did not work for at least 183 days in the preceding 12 months to the census taking).
- Sex differential among the number of male and female worker in the total workforce is significant. Of the total 402 million workers, 275 million are males and 127 million females. This would mean that 51.7 percent of the total males and 25.6 percent of the total females are workers. The number of female workers is about less than half the number of male workers. In terms of proportion, 68.4 percent of the workers are males and 31.6 percent females

Statement Analysis:

Statement 1	Statement 2
Incorrect	Correct
In India, the work participation rate tends to be higher in the areas of lower levels of economic development. Because a large number of manual workers are needed to perform the subsistence economic	As per the census 2011, the majority of the working population in the country are cultivators and agricultural laborers.

activities. E.g, states like Chhattisgarh, Bihar, himachal pradesh have higher work participation rate.

Q.146) “Short Stature, dark chocolate brown skin, woolly hair, bulbous forehead, broad flat nose and slightly protruding jaws”

To which ethnic group does the above description refer to?

- a) Australoids
- b) Negrito
- c) Mongoloids
- d) Dravidians.

Q.146) Solution (b)

Explanation:

Ethnic Group	Prominent Features
Negrito	Short Stature, dark chocolate brown skin, woolly hair, bulbous forehead, broad flat nose and slightly protruding jaws
Proto Australoids	Resemble Negritos but no woolly hairs.
Mongoloids	Round and Broad head, face with very high cheekbones and long flat nose, little or no hair on the body.
Dravidians	Medium stature, dark skin and long head
Nordics	Long head, fair complexion, well developed nose and a well built body.

Q.147) Coorgis and Parsis are representatives of which ethnic group in India?

- a) Brachycephals
- b) Nordics
- c) Dravidians
- d) Mongoloids

Q.147) Solution (a)

Explanation:

Coorgis or Kodavas:

- The Kodavas or coorgis are considered a patrilineal ethno-lingual tribe from the region of Kodagu, (in the state of Karnataka) They natively speak the Kodava language. Traditionally they are land-owning agriculturists with martial customs.
- Kodavas may be the descendants of the broad headed, 'brachycephalic' stock who entered into the Indus Valley during the Mohenjodaro period before the Indo-Aryans and later migrated to the Coorg region.
- One view is that the Kodavas are descendants of Scythians. According to yet another but similar view, the Kodavas belong to the Indo-Scythian race like the Sakas, the Western Kshatrapas and the Thiyyar.

Parsis:

- Parsis (which means 'Persian' in the Persian language) are an ethno religious group who migrated to the Indian subcontinent from Persia during the Muslim conquest of Persia of CE 636–651
- They belong to the Brachycephals ethnic group in a broad way.

Q.148) Consider the following statements with respect to Scheduled caste and scheduled tribe population in India:

1. No tribe has been scheduled in Arunachal Pradesh and no Caste has been scheduled in Punjab.
2. Out of total population in the state/Union territory Lakshadweep has the highest percentage of population as scheduled tribe population.

Which of the above statements is/are correct?

- a) 1 only
- b) 2 only

- c) 1 and 2
d) Neither 1 nor 2

Q.148) Solution (b)**Basic Information:**

- The tribes are the autochthonous or native people of the land who are believed to be the earliest settlers in the Indian peninsula. They are generally called Adivasis.
- Article 341 and 342 of the Indian constitution defines as to who constitutes the scheduled caste and scheduled tribe population in India.
- The Scheduled Castes and Scheduled Tribes comprise about 16.6% and 8.6%, respectively of India's population (according to the 2011 census).

Statement Analysis:

Statement 1	Statement 2
Incorrect	Correct
No tribe has been scheduled in Punjab, Haryana, Chandigarh and Delhi. And nocaeste has been scheduled in Arunachal Pradesh, Nagaland, Andaman Nicobar and Lakshadweep.	Tribal population as percentage of total population: <ol style="list-style-type: none"> 1. Lakshadweep - 94.79 percent 2. Mizoram - 94.43 percent 3. Nagaland - 86.48 percent 4. Meghalaya - 86.15 percent 5. Arunachal Pradesh - 68.79

Q.149) Consider the following statements with respect to the linguistic composition in India:

1. The linguistic regions in the country have distinct boundaries.
2. Manipuri is the smallest language group among the scheduled languages.

Which of the above statements is/are correct?

- a) 1 only

- b) 2 only
- c) 1 and 2
- d) None of the above.

Q.149) Solution (d)**Basic Information:**

- It is said that India is a forest of languages. The most comprehensive data on languages was collected at the time of the 1961 census. According to these census figures there were 187 languages spoken in India. Out of these as many as 94 languages are spoken by less than 10000 persons each and 23 languages together account for 77 percent of the total population of the country.
- 22 languages have been considered as scheduled languages in the constitution of India. Maithili, Santhali, Bodo and Dogri were newly added to this list.
- Language became the prime criteria for delimitation of states after Independence in India.
- Hindi speaking people constitute the highest percentage of the total population in India. About 41.03 percent.

Statement Analysis:

Statement 1	Statement 2
Incorrect	Incorrect
The linguistic regions in the country do not have distinct boundaries. They gradually merge and overlap in their respective frontier zones	Sanskrit is the smallest language group amongst the scheduled languages.

Q.150) Consider the following statements with respect to sex ratio in India:

1. Kerala is the only state/union territory in India which has more females than males as per the census 2011.
2. Amongst the states Haryana has the lowest sex ratio.

Which of the above statements is/are correct?

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

Q.150) Solution (b)**Basic Information:****Sex Ratio:**

- Sex ratio is defined as “number of females per 1000 males in the population”.
- Sex ratio of population of a country is mainly the outcome of the interplay of sex differentials in mortality, sex selective migration, sex ratio at birth and at times sex differential in population enumeration.
- As per the census 2011, the overall sex ratio for Indian population is 940.

Few Important Statistics on Sex Ratio:

- State with Highest Female Sex Ratio : Kerala (1,058)
- State with Lowest Female Sex Ratio : Haryana (861)
- UT with Highest Female Sex Ratio : Pondicherry (1,001)
- UT with Lowest Female Sex Ratio : Daman & Diu (710)
- District with Highest Female Sex Ratio : Mahe (Pondicherry) (1,147)
- District with Lowest Female Sex Ratio : Daman (Daman & Diu) (591)

Q.151) The shape of the population pyramid reflects the characteristics of the population. Which of the following pairs is/are correctly matched?

<u>Shape of Pyramid</u>	<u>Meaning</u>
1. Bell shaped	Constant population.
2. Triangle	Declining population.
3. Tapered top and bottom	Expanding population.

Choose the correct option:

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

Q.151) Solution (a)**Basic Information:**

- The age-sex structure of a population refers to the number of females and males in different age groups.
- A population pyramid is used to show the age-sex structure of the population.
- The shape of the population pyramid reflects the characteristics of the population. The left side shows the percentage of males while the right side shows the percentage of women in each age group.

Shape of population pyramid	Meaning	Examples
Bell Shaped	Constant population	Australia
Triangle shaped	Expanding population	Nigeria
Tapered top and bottom	Declining population	Japan

Q.152) Consider the following statements with respect to population growth rate.

1. The annual growth rate of population for the entire country is around 1.64 percent as per the census 2011.
2. Himachal Pradesh registered the lowest population growth rate as per the census 2011.

Which of the above statements is/are correct?

- a) 1 only
- b) 2 only
- c) 1 and 2
- d) None of the above.

Q.152) Solution (a)**Basic Information:**

Population growth rate in India:

- The percentage decadal growth during the period 2001-2011 has registered the sharpest decline since independence. It declined from 23.87 percent for 1981-91 to 21.94 percent for the period 1991-2001, a decrease of 2.33 percentage points.
- For 2001-11 this decadal growth has become 17.64 percent, a further decrease of 3.9 percentage point.

Statement Analysis:

Statement 1	Statement 2
Correct	Incorrect
The annual growth rate of India's population is 1.64 percent and the decadal growth rate is around 17 percent	Kerala registered the lowest population growth rate as per the census 2011

Q.153) Consider the following statements with respect to urban areas in India:

1. Goa is the most urbanised state in India as per census 2011.
2. The proportion of Urban population is lowest in Himachal Pradesh.

Which of the above statements is/are correct?

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

Q.153) Solution (c)**Basic Information:**

- As per the census in 2011, 31% of the country's population lived in urban areas.
- In terms of absolute number of persons living in urban areas, Maharashtra continues to lead with 50.8 million persons which comprises 13.5 percent of the total urban population of the country. Uttar Pradesh accounts for about 44.4 million, followed by Tamil Nadu at 34.9 million.

- The proportion of urban population continues to be the lowest in Himachal Pradesh with 10.0 per cent followed by Bihar with 11.3 percent, Assam (14.1 percent) and Orissa (16.7 percent).
- Among major states, Tamil Nadu continues to be the most urbanized state with 48.4 percent of the population living in urban areas followed now by Kerala (47.7 per cent) upstaging Maharashtra (45.2 percent).

Statement Analysis:

Statement 1	Statement 2
correct	Correct
Among all the States and Union territories, the National Capital Territory of Delhi and the Union territory of Chandigarh are most urbanized with 97.5 percent and 97.25 percent urban population respectively, while among States, Goa is now the most urbanised State with 62.2 percent urban population.	The proportion of urban population is lowest in Himachal Pradesh with 10 percent.

Q.154) Arrange the following religious minorities groups in descending order based on their population size (As per census 2011):

1. Jains
2. Christians
3. Budhists
4. Sikhs

Choose the correct option:

- a) 2-3-4-1
- b) 2-4-3-1
- c) 2-3-1-4
- d) 2-3-4-1

Q.154) Solution (b)

Basic Information:

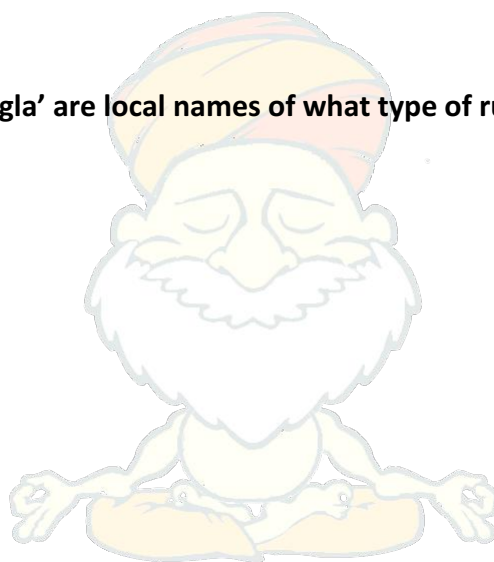
- Religion is one of the most dominant forces affecting the cultural and political life of most Indians.
- Religion virtually permeates into almost all the aspects of people's family and community lives; it is important to study the religious composition in detail.

Population size based on religion (As per census 2011)

- Hindu 96.63 crores (79.8%);
- Muslim 17.22 crores (14.2%);
- Christian 2.78 crores (2.3%);
- Sikh 2.08 crores (1.7%);
- Buddhist 0.84 crores (0.7%);
- Jain 0.45 crores (0.4%),
- Other Religions & Persuasions (ORP) 0.79 crores (0.7%) and Religion Not Stated 0.29 crores (0.2%).

Q.155) 'Panna', 'para', 'nagla' are local names of what type of rural settlements in India?

- Nucleated.
- Semi Clustered.
- Hamleted
- Isolated



Q.155) Solution (c)

Explanation:

Rural settlements in India can broadly be put into four types:

- **Clustered, agglomerated or nucleated:** In this type of village the general living area is distinct and separated from the surrounding farms, barns and pastures. Such settlements are generally found in fertile alluvial plains and in the north-eastern states.
- **Semi-clustered or fragmented:** It may result from tendency of clustering in a restricted area of dispersed settlement. one or more sections of the village society choose or are forced to live a little away from the main cluster or village. Such settlements are widespread in the Gujarat plain and some parts of Rajasthan.
- **Hamleted:** These units are locally called panna, para, palli, nagla, dhani, etc. in various parts of the country. This segmentation of a large village is often motivated by social and ethnic factors. Such villages are more frequently found in the middle and lower Ganga plain, Chhattisgarh and lower valleys of the Himalayas.

- **Dispersed or isolated:** Extreme dispersion of settlement is often caused by the extremely fragmented nature of the terrain and land resource base of habitable areas. Many areas of Meghalaya, Uttaranchal, Himachal Pradesh and Kerala have this type of settlement

Q.156) Consider the following statements with respect to literacy rates in India:

1. The crude literacy rate for India in Census 2011 is 74.04 percent.
2. Kerala is the only state in India where female literacy rate is higher than the male literacy rate.

Which of the above statements is/are correct?

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

Q.156) Solution (d)

Basic Information:

Crude Literacy rate and Effective Literacy rate:

- The literacy rate taking into account the total population of the country is termed as “Crude Literacy Rate”, while the literacy rate calculated taking into account the age seven and above population is called the “Effective Literacy Rate”.
- For the purpose of census 2011, a person aged seven and above, who can both read and write with understanding in any language, is treated as literate. A person, who can only read but cannot write, is not literate.

Some facts related to Literacy rate in India:

- The results of the 2011 census reveal that there has been an increase in literacy in the country.
- The literacy rate in the country is 74.04 per cent, 82.14 for males and 65.46 for females.
- Kerala retained its position by being on top with a 93.91 percent literacy rate, closely followed by Lakshadweep (92.28 per cent) and Mizoram (91.58 per cent).

- Bihar with a literacy rate of 63.82 per cent ranks last in the country preceded by Arunachal Pradesh (66.95 per cent) and Rajasthan (67.06 per cent).
- The difference in literacy among males and females is as low as less than 5% in state of Meghalaya, Kerala and Mizoram whereas states like Rajasthan, Jharkhand, D & N Haveli, Jammu & Kashmir, Uttar Pradesh, Chhatisgarh have the difference to be the magnitude of 20% and above.

Statement Analysis:

Statement 1	Statement 2
Incorrect	Incorrect
The effective literacy rate in India is 74.04 percent as per the census 2011.	No state in India has a female literacy rate higher than those of males.

Q.157) Which of the following factors are considered for enumeration of migration in census of India?

1. Place of birth
2. Place of work
3. Place of residence

Choose the correct option:

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

Q.157) Solution (b)

Explanation:

- Migration is one of the important data collected during the census exercise.
- In the census of India, migration is enumerated based on the following two factors.
 1. Place of Birth: If the place of birth is different from the place of enumeration (known as life time migrant)

2. Place of residence: If the place of last residence is different from the place of enumeration (known as migrant by place of last residence)

Q.158) Which of the following factors are considered for classifying the census towns in India?

1. Total population
2. Both male and female working population
3. Density of population
4. Growth rate of population.

Choose the correct option:

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

Q.158) Solution (a)

Explanation:

According to census 2011, urban areas are comprised types administrative units

1. Statutory Towns: All administrative units that have been defined by statute as urban like Municipal Corporation, Municipality, Cantonment Board, Notified Town Area Committee, Town Panchayat, nagar Palika etc
2. Census towns: Administrative units satisfying the following three criteria simultaneously are treated as census towns.
 - It should have a minimum population of 5000 persons.
 - At least 75 percent of the male main working population should have been engaged in non-agricultural activities.
 - It should have a density of population of at least 400 persons per sq km. (1000 per sq mile).

Q.159) Consider the following statements with respect to density of population:

1. Arunachal Pradesh has the lowest population density amongst states in India.
2. Bihar has the highest population density amongst states in India.

Which of the above statements is/are correct?

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

Q.159) Solution (c)

Basic Information:

- Population density is defined as the number of persons per sq km. It is one of the important indices of population concentration is the density of population.
- Population density helps in getting a better understanding of the spatial distribution of population in relation to land.
- There has been a steady increase of more than 200 persons per sq km over the last 50 years as the density of population increased from 117 persons/ sq km in 1951 to 382 persons/sq km in 2011.
- Spatial variation of population densities in the country ranges from as low as 17 persons per sq km in Arunachal Pradesh to 11,320 persons in the National Capital Territory of Delhi.
- Maharashtra 365, Karnataka 319, Madhya Pradesh 236.
- Among the northern Indian States Bihar (1106), West Bengal (1028) and Uttar Pradesh (829) have higher densities.
- Kerala (860) and Tamil Nadu (555) have higher densities among the peninsular Indian states.

Statement Analysis:

Statement 1	Statement 2
Correct	Correct
Arunachal pradesh has the lowest population density amongst states in India (17 persons per sq km)	Bihar has the highest population density amongst states in India (1106 person per sq km)

Q.160) Ambala and Udhampur are categorised as which category of towns in India (According to functional classification)?

- a) Administrative towns
- b) Education towns
- c) Garrison cantonment towns
- d) Religious towns.

Q.160) Solution (c)**Explanation:****Functional Classification of towns in India.**

Administrative towns	Chandigarh, New Delhi, Bhopal, Shillong, Guwahati, Imphal, Srinagar, Gandhinagar, Jaipur, Chennai
Industrial towns	Mumbai, Salem, Coimbatore, Modinagar, Jamshedpur, Hugli, Bhilai, etc.
Transport towns	Kandla, Kochchi, Kozhikode, Visakhapatnam, etc.
Commercial towns	Mumbai, Kolkata, Saharanpur, Satna, Delhi, Ahmedabad etc .
Mining towns	Raniganj, Jharia, Singrauli, Korba, Dhanbad, Bellari etc.
Garrison Cantonment towns	Ambala, Udampur, Mhow, Babina, Jalandhar etc
Educational towns	Varanasi, Bengaluru, Aligarh, Allahabad, Manipal etc
Religious towns	Varanasi, Mathura, Amritsar, Madurai, Puri, Ajmer etc

Q.161) Consider the following pairs with respect to the origin and formation of lakes.

<u>Lakes</u>	<u>Origin/Formation</u>
1. Kettle Lake	By Glaciation
2. Caldera lake	By Tectonic activity
3. Oxbow lake	By river meandering
4. Beaver lake	By Animals.

Which of the above pairs is/are correctly matched?

- 2 only
- 2 and 3 only
- 1, 3 and 4 only
- 1, 2, 3 and 4

Q.161) Solution (c)

Explanation:

- A lake is an area filled with water, localized in a basin, surrounded by land, apart from any river or other outlet that serves to feed or drain the lake.
- Lakes lie on land and are not part of the ocean. Therefore, they are distinct from lagoons, and are also larger and deeper than ponds.
- They are formed due to various agents and processes.

Type of Lake	Origin or Formation
Tectonic Lakes, Rift Valley lakes	Formed due to earth movements
Cirque lakes, Tarns, Kettle Lakes, Rock hollow lakes	Formed by glaciation activity
Crater lakes or Caldera Lakes, lava blocked lakes.	Formed by volcanic activity
Karst lakes, Wind deflated lakes	Formed by Erosion
Ox bow lake (Meandering of river)	Formed due to deposition

Beaver lakes	Formed by animals.
--------------	--------------------

Q.162) Westerlies are stronger and regular in the southern hemisphere than the Northern Hemisphere. Which of the following is/are the reasons behind this?

1. Presence of more ocean currents in the southern hemisphere.
2. Large expanse of water in the southern hemisphere.
3. Higher temperature in southern hemisphere than northern hemisphere.

Choose the correct option:

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

Q.162) Solution (a)

Explanation:

- Winds blowing from the subtropical high pressure belts towards the sub polar low pressure belts are called westerlies.
- The directions of the Westerlies are opposite to trade winds and that is why they are also called antitrade winds.
- They blow in the middle latitudes between 30 and 60 degrees latitude, and originate from the high pressure area in the horse latitudes towards the poles.
- The direction of the westerlies are from south-west to north-east in the northern hemisphere and north-west to south-east in the southern hemisphere.
- The westerlies of the southern hemisphere are stronger and regular due to the vast expanse of water. The composition of land is comparatively less compared to the northern hemisphere.
- The westerlies are best developed between 40° and 65°S latitudes. These latitudes are often called Roaring Forties, Furious Fifties, and Shrieking Sixties – dreaded terms for sailors.

Q.163) What does the term 'Hwangtu' refer to?

- a) Oasis formed in the deserts.
- b) Wind borne dust from the Gobi desert.

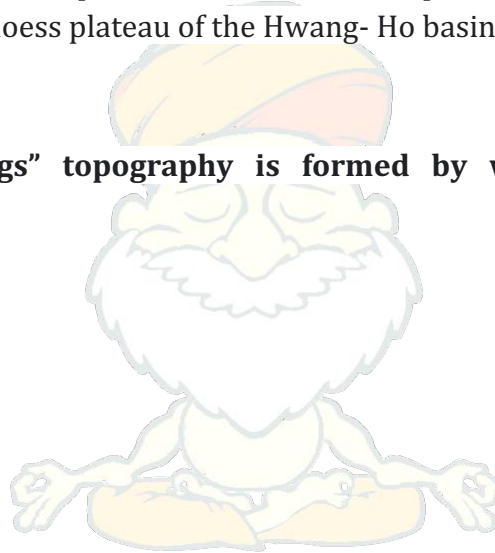
- c) Shallow lakes formed in the deserts due to wind erosion.
- d) Depositional landforms in the deserts.

Q.163) Solution (b)**Explanation:**

- The fine dust blown beyond the desert limits is deposited on neighbouring lands as loess. It is a yellow, friable material and is usually very fertile. In China, such yellowish wind-borne dust from the Gobi Desert is called 'Hwangtu' — the yellow earth.
- Loess is in fact, fine loam, rich in lime, very coherent and extremely porous. Water sinks in readily so that the surface is always dry.
- Streams have cut deep valleys through the thick mantle of soft loess and badland topography may develop. The most extensive deposit of loess is found in north-west China in the loess plateau of the Hwang- Ho basin.

Q.164) “Basket of Eggs” topography is formed by which of the following geomorphic agents?

- a) Wind
- b) Glaciers
- c) River
- d) Sea waves

**Q.164) Solution (b)****Explanation:**

- The term 'basket of eggs' topography refers to Drumlins which is a depositional landform formed by glaciers.
- They are forms of rounded hummocks resulting from the deposition of glacial till which look like an inverted boat or spoon.
- They vary in size from a few metres to 60-100 metres in height and from a few hundred metres to one-two kilometres in length. When they occur in a cluster they look like a basket of eggs.
- Colonies of drumlins are found in Finland, Northern Island and Wisconsin, USA.

Q.165) Consider the following statements with respect to “La Nina”:

1. During La Nina Year, the waters in the eastern pacific ocean are colder than normal.
2. La Nina brings heavy rains to Peru and Ecuador regions.

Which of the above statements is/are correct?

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

Q.165) Solution (a)

Basic Information:

- El Nino and La Nina are climate patterns of opposite phases which together forms the El Nino Southern Oscillation (ENSO).

El Nino:

- **El Nino** is known as the "little boy" or "Christ Child" in Spanish.
- During the El Nino year, the ocean water in the eastern pacific will be warmer than normal. Air pressure drops over large areas of the central Pacific and along the coast of South America. The normal low pressure system is replaced by a weak high in the western Pacific. This change in pressure pattern causes the trade winds to be reduced. This reduction allows the equatorial counter current (current along doldrums) to accumulate warm ocean water along the coastlines of Peru and Ecuador. upwelling along the coasts of peru reduces and there is huge amounts of rainfall in the peru and ecuador regions with reduced rainfall over Australia and India.

La Nina:

- La Nina means 'little girl' in Spanish and is also known as El Viejo or 'cold event'.
- During the La Nina phase, the water temperature in the Eastern Pacific gets colder than normal. As a result of this, there is a strong high pressure over the eastern equatorial Pacific.
- La Nina causes drought in Peru and Ecuador, heavy floods in Australia and good monsoon rains in India.

Statement Analysis:

Statement 1	Statement 2
--------------------	--------------------

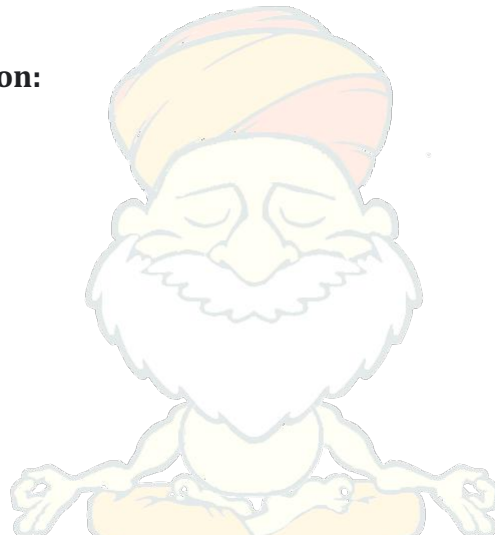
Correct	Incorrect
During La Nina year, the ocean water in the eastern pacific region will be colder than normal.	La Nina brings drought conditions to the peru and ecuador regions. It brings heavy rainfall to Australia and good monsoons to India.

Q.166) Arrange the following sources of freshwaters in the ascending orders of their percentage distribution.

1. Icecaps and Glaciers
2. Rivers
3. Groundwater.
4. Lakes.

Choose the correct option:

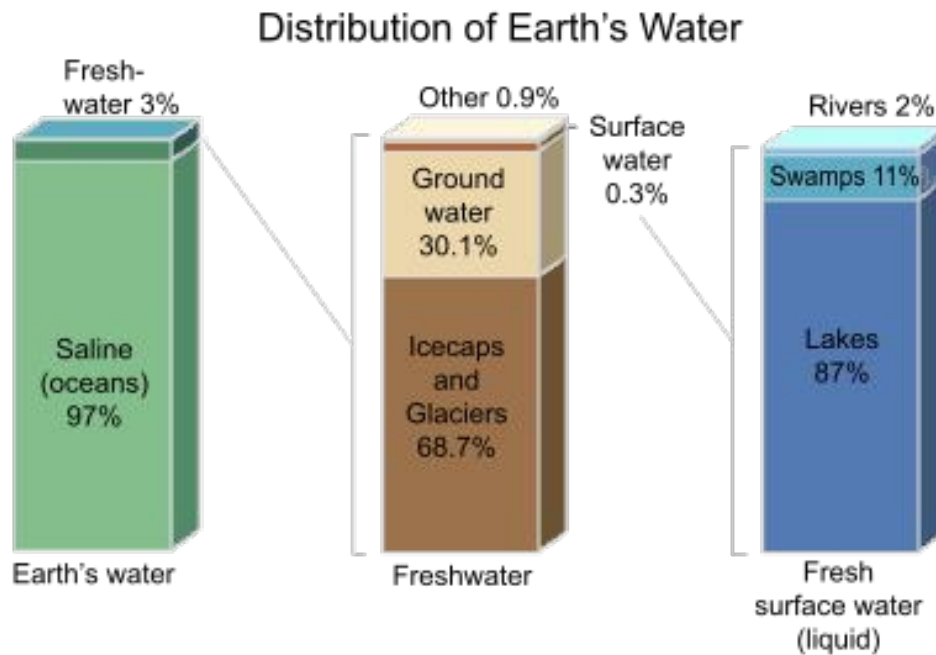
- a) 1-3-4-2
- b) 1-2-3-4
- c) 2-4-3-1
- d) 2-4-1-3



Q.166) Solution (c)

Explanation:

- The distribution of water on the Earth's surface is extremely uneven. Only 3 percent of water on the surface is fresh. The remaining 97 percent resides in the ocean.
- Of freshwater, 69 percent resides in glaciers, 30 percent underground and less than 1 percent is located in lakes, rivers, and swamps.



Q.167) Which of the following is/are factors influencing the temperature of oceans?

1. Upwelling
2. Cloud cover
3. Albedo
4. Salinity

Choose the correct option:

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



Q.167) Solution (d)

Explanation:

Factors affecting temperature of ocean regions:

- **Insolation and Albedo (proportion of insolation reflected back):** Insolation is highest at the equator and it decreases as we move towards the pole. As the sun is the basic source of energy, the temperature profile also follows the same pattern.

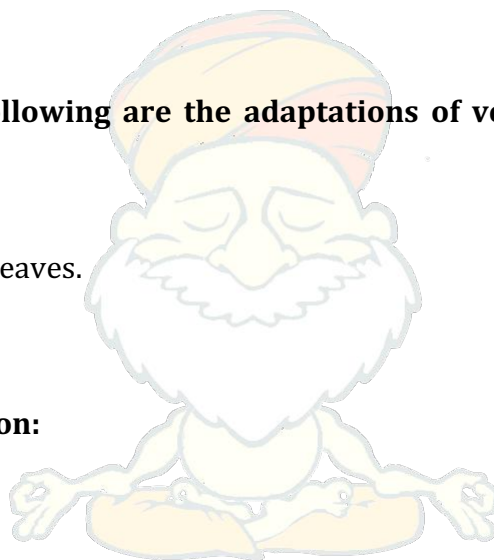
- **Cloud cover:** Cloud cover hinders the direct insolation. At a given time earth is covered 50 percent with clouds. As the equator is covered with clouds, temperature at tropics is higher than the equator.
- **Salinity:** Salinity increases boiling point of water, thus evaporation decreases. Hence with higher salinity temperature is high.
- Enclosed seas record higher temperatures than open sea where inter-mixing of warm and cold water takes place.
- **Contact with land:** Oceans in the northern hemisphere are warmer than in the southern hemisphere due to greater contact with land surface.
- **Ocean Currents:** This is a mechanism of temperature distribution in the ocean. Where warm currents carry warm water from the equator towards the pole and vice versa. Cold currents have a cooling effect in an area like Peru Current and Labrador Current.
- **Upwelling:** On the eastern side of ocean water comes to the surface from the depth of ocean. This water is very cold and has a cooling effect on the surface.

Q.168) Which of the following are the adaptations of vegetation in the tropical climates?

1. Deep roots.
2. Large dark green leaves.
3. Thick Bark.
4. Waxy cuticle.

Choose the correct option:

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



Q.168) Solution (b)

Explanation:

Vegetation of a region represents the sum total of the climatic condition, the below illustration shows the adaptability of the vegetation to the prevailing climatic condition.

Adaptations to tropical climates:

- Large dark-green leaves (= lots of chlorophyll) to absorb sun light, especially in understory with lots of shade
- Leaf arrangement maximizes light capture

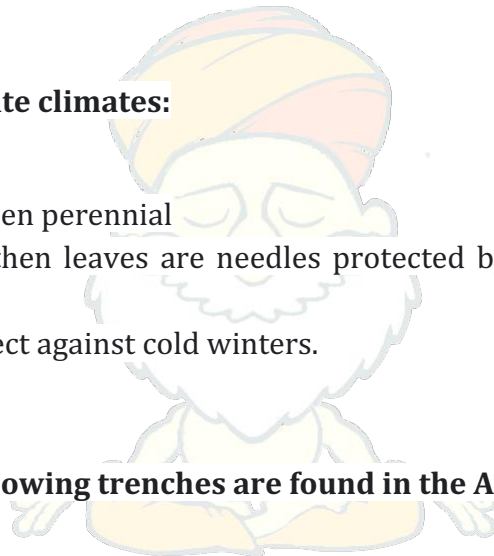
- Slick waxy cuticle to allow rain to run off
- Shallow roots (no need to go deep for nitrogen or water) and buttress or stilt roots (to help with stability).
- Continuous growth (no year-rings in trees); trees can reach enormous heights.

Adaptations to desert climates:

- Small leaves or no leaves at all to minimize water loss
- Photosynthesis instead often in trunk
- Leaves are frequently modified to spines which aid in defense but also can reflect excess light.
- Highly reflective cuticle to reflect excess light.
- Succulence - storing of water in specialized tissues (fleshy leaves, trunks, underground etc.) also extensive and deep root system.

Adaptations to temperate climates:

- annual life cycle
- deciduousness when perennial
- If not deciduous then leaves are needles protected by thick cuticles to survive winter.
- thick bark to protect against cold winters.



Q.169) Which of the following trenches are found in the Atlantic Ocean?

1. Tonga trench
2. Puerto-Rico trench
3. Kurile trench.
4. Romanche Trench

Choose the correct option:

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

Q.169) Solution (c)

Basic Information:

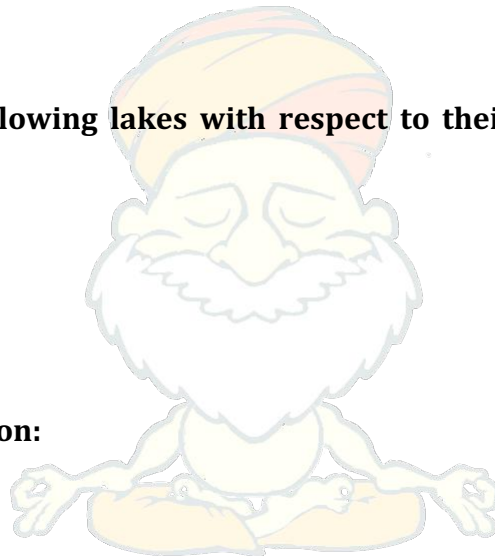
Ocean	Name of the trench
Pacific Ocean	Mariana Trench, Tonga Trench, Kurile Trench, Karmadec Trench, Phillipine Trench, Japan Trench, Peru-Chile Trench
Atlantic Ocean	Peurto-Rico Trench, South Sandwich Trench, Cayman Trench, Romanche trench, Norwegian trench.
Indian Ocean	Sunda Trench, Diamantia trench, sumatra trench.

Q.170) Arrange the following lakes with respect to their salinity in descending order.

1. Caspian sea
2. Red Sea
3. Dead sea
4. Lake Van

Choose the correct option:

- a) 1-2-3-4
- b) 1-2-4-3
- c) 3-4-1-2
- d) 4-3-1-2



Q.170) Solution (d)

Basic Information:

Water Body	Salinity (In Ppt)
Baltic Sea	7
Red Sea	39

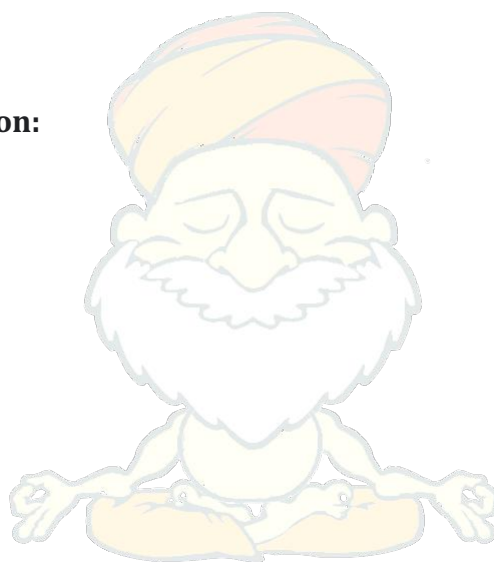
Caspian Sea	180
Dead sea	250
Lake Van	330

Q.171) The plate tectonics theory divides the earth crust into several major and minor plates. Which of the following is/are categorised as minor plates?

1. Cocos Plate.
2. Australian plate.
3. Nazca plate.
4. Arabian plate.

Choose the correct option:

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



Q.171) Solution (a)

Explanation:

Major Plates	Minor Plates
Antarctic plate, North-American Plate, South-American Plate, Pacific Plate, India-Australian Plate, African Plate, Eurasian Plate.	Cocos Plate, Nazca Plate, Arabian Plate, Philippine Plate, caroline plate, fuji plate.

Q.172) What does the term “Tombolo” refer to in geomorphology?

- a) Coastal depositional landforms.
- b) Depositional landforms formed by glaciers.

- c) Erosional Landforms formed by winds.
- d) Erosional Landforms formed by water.

Q.172) Solution (a)**Explanation:**

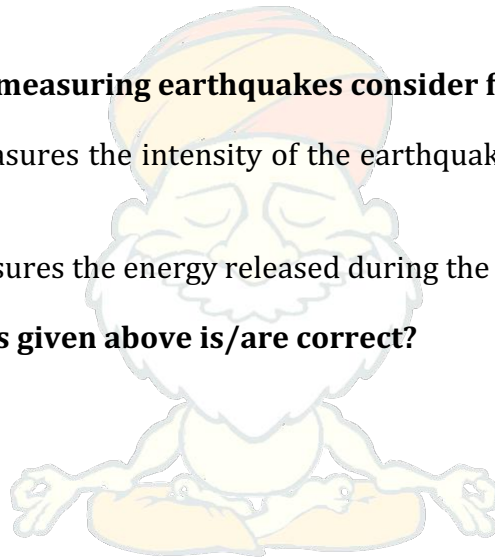
- When the mainland is attached to an island by a narrow piece of land such as a bar or a spit, the resulting landform is called a tombolo.
- It appears to be a small island that has not fully separated from the mainland. This island-like landform is actually attached to the coast by a thin sand bar or spit.
- Tombolos are sometimes referred to as “tied islands”, because they seem to be tethered to the coast.

Q.173) With respect to measuring earthquakes consider following statements:

1. Mercalli scale measures the intensity of the earthquake in which visible damage is captured.
2. Richter scale measures the energy released during the earthquake.

Which of the statements given above is/are correct?

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

**Q.173) Solution (c)****Basic Information:**

- The earthquake events are scaled either according to the magnitude or intensity of the shock.
- The magnitude scale is known as the Richter scale. The magnitude relates to the energy released during the quake. The magnitude is expressed in numbers, 0-10.
- The intensity scale is named after Mercalli. The intensity scale takes into account the visible damage caused by the event. The range of intensity scale is from 1-12.

Statement Analysis:

Statement 1	Statement 2
Correct	Correct
<p>The Mercalli scale bases its measurement on the observed effects of the earthquake and describes its intensity.</p> <p>The calculation for the Mercalli scale is quantified from the observation of the earthquake's effect on the earth's surface. It is also based on the effect on humans, objects, and man-made structures.</p>	<p>The Richter scale measures the seismic waves, or the energy released, causing the earthquake and describes the quake's magnitude. It is a logarithmic.</p> <p>The logarithmic scale for the Richter is base-10 and is based on the amplitude of waves.</p>

Q.174) Consider the following climatic conditions:

1. Uniform temperature throughout the year without winters.
2. Evening precipitation.
3. Convectonal rainfall.

The above described conditions are referring to which of the following climatic regions of the world?

- a) Tropical Marine Climate
- b) Hot wet Equatorial climate.
- c) Mediterranean climate
- d) Sudan climate.

Q.174) Solution (b)

Explanation:

- Equatorial hot, wet climate is found between 5 – 10 degree north & south of the equator.
- The most outstanding feature of the equatorial climate is its great uniformity of temperature throughout the year with no winters.

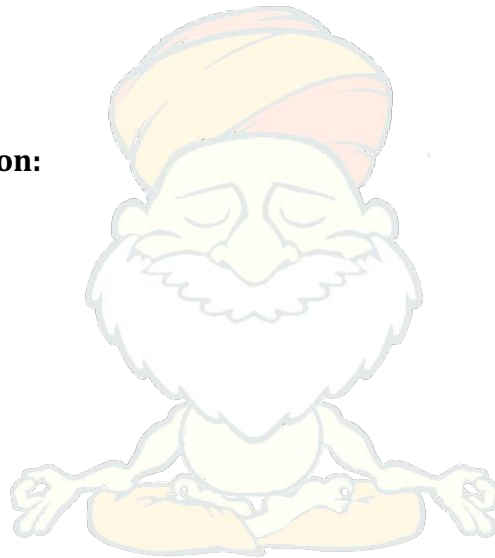
- The average monthly temperatures are about 26 – 28 degrees Celsius, with small annual range of temperature 3 degree Centigrade and fairly greater diurnal range of temperature 12 – 15 degree Centigrade.
- Cloudiness and heavy precipitation. 150 – 250 cm of rainfall or more in a year.
- There is no month without the rain.
- Most of the rainfall is convectional, with thunderstorms & lightning often accompanying the torrential showers.
- Evening showers are common.

Q.175) Arrange the following gases in the atmosphere as per their percentage by volume in ascending order.

1. Carbon dioxide
2. Argon
3. Hydrogen
4. Oxygen
5. Nitrogen.

Choose the correct option:

- a) 4-5-3-2-1
- b) 4-3-5-2-1
- c) 3-1-2-4-5
- d) 1-3-2-4-5



Q.175) Solution (c)

Explanation:

Percentage by volume of various gases in the atmosphere.

1. Nitrogen - 78 %
2. Oxygen- 20 %
3. Argon 0.93 %
4. Carbon-dioxide - 0.03 %
5. Neon - 0.0018 %
6. Helium - 0.0005 %
7. Ozone - 0.00006 %

8. Hydrogen - 0.00005 %
9. Kryton, Xenon, Methane -- Trace amounts.

Q.176) Which of the following are the indirect sources of obtaining information regarding earth's interior?

1. Seismic activity
2. Magnetic field
3. Volcanic eruptions.

Choose the correct option:

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

Q.176) Solution (c)

Explanation:

The knowledge about the interior of the earth is obtained through direct sources and indirect sources.

Direct sources of Information	Deep Drilling projects, Volcanic Eruptions
Indirect Sources of Information	Gravitation, Magnetic field, Seismic activity, meteors, analysis of temperature and pressure variations within earth.

Q.177) Which of the following is/are related to the formation or modification of the present day atmosphere?

1. Degassing
2. Solar Winds.
3. Differentiation of materials in earth's interior.
4. Photosynthesis.

Choose the correct option:

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

Q.177) Solution (d)

Explanation:

The present atmosphere is the result of many factors:

- Solar winds contributed in removing the hydrogen and helium present in the early atmosphere.
- During the cooling of the earth, gases and water vapour were released from the interior of the earth through the process of degassing.
- The composition of the atmosphere was modified by the living world through the process of photosynthesis.

Q.178) Consider the following statements with respect to water vapour in the atmosphere:

1. Water vapour increases from poles towards the equator.
2. Water vapour decreases with altitude.

Which of the above statements is/are correct?

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

Q.178) Solution (c)

Basic Information:

- Gases form of water present in the atmosphere is called water vapour. It is one of the most variable gaseous substances present in the atmosphere.
- It is the source of all kinds of precipitation.
- The amount of water vapour varies from 2 percent to 4 percent. Its maximum amount in the atmosphere could be up to 4% which is found in the warm and wet regions.

- Water vapour reaches in the atmosphere through evaporation and transpiration.
- Water vapour absorbs part of the incoming solar radiation (insolation) from the sun and preserves the earth's radiated heat. It thus acts like a blanket allowing the earth neither to become too cold nor too hot.
- Water vapour also contributes to the stability and instability in the air.
- The amount of water vapour decreases with altitude.
- It also decreases from the equator towards the poles

Statement Analysis:

Statement 1	Statement 2
Correct	Correct
Water vapour increases from poles towards equator due to higher amount of insolation received towards the equator.	As one goes higher in the atmosphere, the amount of water vapour decreases.

Q.179) With respect to the cyclones and anti-cyclones, consider the following statements.

1. Cyclones have high pressure at the centre while anti-cyclones have low pressure at the centre.
2. Winds blow anti-clockwise in the northern hemisphere in cyclones and clockwise in anti-cyclones.

Which of the above statements is/are correct?

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

Q.179) Solution (b)

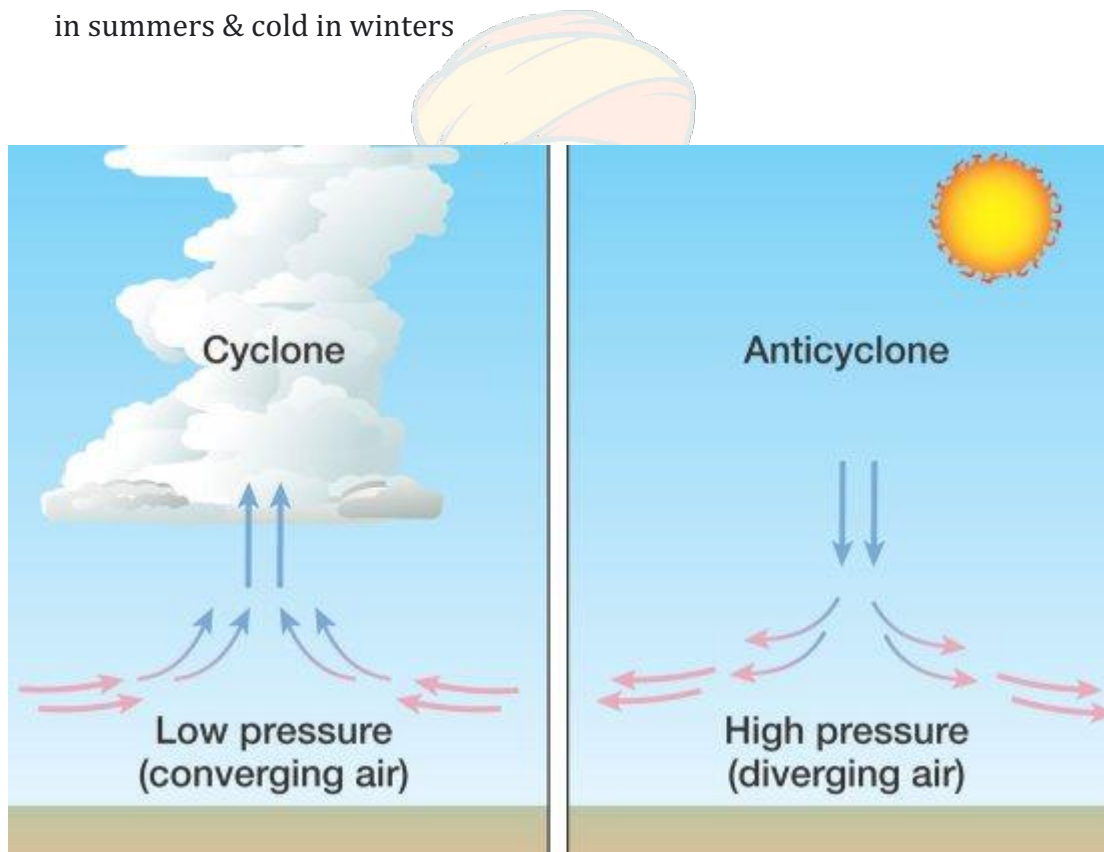
Basic Information:

Cyclones:

- cyclone is a large scale air mass that rotates around a strong center of low atmospheric pressure.
- Cyclones are characterized by inward spiraling winds that rotate about a zone of low pressure.
- There are two types of cyclones. Tropical Cyclones and Temperate cyclones.
- Cyclones move in Anti clockwise in Northern hemisphere and in Clockwise direction in Southern hemisphere due to coriolis effect.

Anticyclones:

- An anticyclone is just opposite to a cyclone
- Basically it is a large-scale circulation of winds around a central region of high atmospheric pressure
- Clockwise in the Northern Hemisphere and counterclockwise in the Southern Hemisphere
- Anticyclones herald fair weather, clearing skies, calm air with high temperature in summers & cold in winters



Statement Analysis:

Statement 1	Statement 2
Incorrect	Correct

The major difference between the cyclones and anti-cyclones is that the cyclones are low pressure systems. Winds blow from outside towards inside i.e, from high pressure outside to low pressure at the centre. While this is opposite in the anti-cyclones.

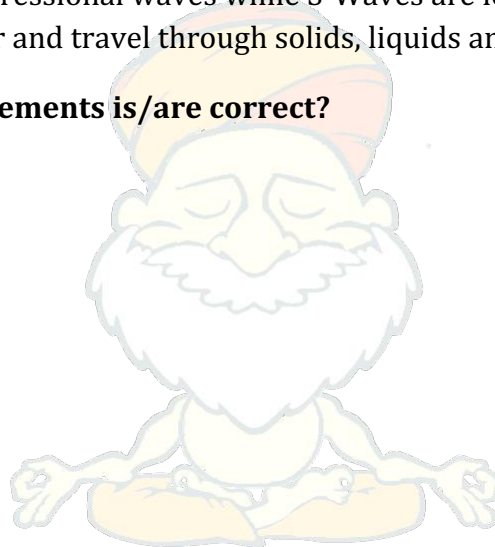
Winds blow anti-clockwise in the Northern hemisphere and clockwise in the southern hemisphere in cyclones due to coriolis force. While in anti-cyclones winds blow clockwise in the northern hemisphere and anti-clockwise in southern hemisphere.

Q.180) Consider the following statements with regard to seismic waves.

1. P-waves are compressional waves while S-Waves are longitudinal waves.
2. S-Waves are faster and travel through solids, liquids and gases.

Which of the above statements is/are correct?

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



Q.180) Solution (a)

Basic Information:

Seismic Waves:

- Seismic waves are waves of energy that travel through the Earth's layers.
- They are a result of earthquakes, volcanic eruptions, magma movement, large landslides and large man-made explosions that give out low-frequency acoustic energy.
- There are two types of seismic waves :
 1. Body waves
 2. Surface waves.

Body Waves and Surface Waves:

- Body waves are the waves that can travel through the layers of the earth and surface waves travel on the surface of the earth.
- Body Waves are divided into P-waves and S-waves.

- P waves or Primary waves are the first waves to reach the surface of the earth. They travel in a to and fro manner, hence, are called compressional waves. They are fastest seismic waves and can move through solid, liquid or gas.
- S waves, or Secondary waves, are the second waves to arrive during an earthquake. They are much slower than P waves and can travel only through solids. They Shake the medium in the direction perpendicular to which they are moving and hence called transverse waves.
- Surface waves are called by different names like Rayleigh Waves, Love waves, Stoneley waves etc.

Statement Analysis:

Statement 1	Statement 2
Incorrect	Incorrect
P - waves are compressional waves while S-waves are called Transverse waves.	P - waves are faster and travel through solids, liquids and gases.

Q.181) Consider the following statements with respect to the geological history of India.

1. Panna and Golconda diamonds belong to the vindhyan rock system.
2. Regur soil belongs to the cuddapah rock system.

Which of the above statements is/are correct?

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

Q.181) Solution (a)

Basic Information:

- Geologically Indian rock systems can be divided into four major divisions.
 1. The Archaean Rock System (about 4000-1000 million years ago)
 2. The Purana Rock System (1400-600 million year ago)
 3. The Dravidian Rock System (600-300 million years ago)

4. The Aryan Rock System (300 million years ago to recent times)

- The Archaean system is the oldest and they include two groups 1. Archaean group of Gneiss and Schists and 2. Dharwar system.
- The Purana system includes two major groups 1. The Cuddapah system and 2. The Vindhyan system.
- The Dravidian system is mostly found in extra-peninsular regions and they consist of abundant fossils. The rocks of cambrian, Ordovician, Silurian, Devonian and Carboniferous periods are included in the Dravidian system.
- The Aryan rock system is the newest and includes Gondwana rock system, Triassic system, Jurassic system, tertiary system (Eocene, Oligocene, Miocene and Pleistocene)) and Cretaceous system. The Deccan Trap of the peninsular block belongs to this period.

Statement Analysis:

Statement 1	Statement 2
Correct	Incorrect
The Upper Vindhyan Beds enclose two diamond bearing horizons from which Panna and Golconda diamonds have been mined.	Basalt is the main rock of the Deccan Trap. The weathering of this rock has given rise to Regur, known as black cotton soil.

Q.182) With respect to Eastern Coastal Plains of India which of the following facts is/are true?

1. They have more natural harbours than western coasts.
2. They have wider and large deltas compared to western coasts.
3. They are examples of emergent coasts.

Choose the correct option:

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

Q.182) Solution (c)

Explanation:

Coastal plains in India:

- The Indian coastline is stretched along 7516.6 km long which covers 6100 km of mainland coastline along with the Andaman, Nicobar and the Lakshadweep islands.
- The coastal plains in India are divided into Eastern and Western coastal plains.
- The western coastal plains are along the Arabian Sea whereas the eastern coastal plains are located along the Bay of Bengal.
- The Bay of Bengal and the Arabian Sea came into being during the Cretaceous or early Tertiary period after the disintegration of Gondwanaland.

Eastern Coastal Plains:

- The eastern coastal plains stretch from West Bengal in the north to Tamil Nadu in the south and pass through Andhra Pradesh and Odisha.
- Deltas of the rivers Mahanadi, Krishna, Godavari and Kaveri are present in the eastern coastal plain.
- The Eastern coast is again divided into three categories:
 1. Utkal coast: Extending between the Chilika Lake and Kolleru Lake.
 2. Andhra coast: Extending between the Kolleru Lake and Pulicat Lake.
 3. Coromandel coast: The Coromandel coast extends between Pulicat Lake and Kanyakumari in Tamil Nadu.
- The eastern coastal plain is of emergent type.
- It has less number of natural harbours due to the presence of large deltas.

Western Coastal Plains:

- The west coast strip extends from the Gulf of Cambay (Gulf of Khambhat) in the north to Cape Comorin (Kanyakumari).
- It is divided into
 1. the Konkan coast,
 2. the Karnataka coast and
 3. the Kerala coast.
- The western coasts have fewer deltas than the east coast. Rather, estuaries, creeks and coves are prominent landforms present in the western coast.
- Major portion of the western coast is of submergent type.
- They have more natural harbours.

Q.183) Arrange the following hills/ranges from South to North.

1. Shevaroy hills
2. Nallamala hills
3. Palkonda range
4. Javadi hills.

Select the correct code?

- a) 1-4-3-2
- b) 1-4-2-3
- c) 2-3-1-4
- d) 3-2-1-4

Q.183) Solution (b)

Explanation:

Correct order (From South to North)

- Shevaroy Hills.
- Javadi Hills
- Palkonda Range
- Nallamala Hills

Refer to figure below



Q.184) The Himalayas are still in their youthful stage and are still rising. Which of the following evidence shows that the Himalayas are still rising?

1. Fossil formations of the Shivalik hills are also found in Tibetan plateau.
2. Occurrence of earthquakes in the Himalayas.
3. Terraces found at the valley sides in the valley regions of the Himalayas.

Choose the correct option:

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

Q.184) Solution (d)

Explanation:

The process of upliftment of the Himalayas is not yet complete and it is still under process. Following evidence can be cited to prove that Himalayas are still rising.

- Some fossil formations found in the Shivalik hills and the Tibet plateau are similar indicating similar climate conditions in the past in both areas. Tibetan plateau has since risen to its present elevation.
- Frequent Occurrence of earthquakes indicates that Himalayas have not yet attained Isostatic Equilibrium and they still continue to rise.
- Youthful stage of Himalayan rivers
- Terraces found at the valley sides suggests rejuvenation of the valley region due to the uplift.

Q.185) With respect to the deserts in India, which of the following pairs is/are correctly matched?

<u>Term</u>	<u>Meaning</u>
1. Dhrian	Fertile tract of land
2. Rohi	Shifting sand dunes
3. Bagar	semi-arid plain
4. Thali	sandy plain

Choose the correct option:

- a) 1 and 2 only
- b) 3 and 4 only

- c) 1, 2 and 4 only
- d) 1, 2, 3 and 4

Q.185) Solution (b)

Explanation:

The desert in India is called the Thar desert or the Great Indian desert.

Some of the characteristic features of Rajasthan desert are as follows:

- The desert proper is called the Marusthali. This region has an arid climate with low vegetation cover. In general, the Eastern part of the Marushthali is rocky, while its western part is covered by shifting sand dunes locally known as 'Dhran'.
- **Bagar:** It refers to the semi-arid plain desert area which is west of Aravallis. Bagar has a thin layer of sand. It is drained by Luni in the south whereas the northern section has a number of salt lakes.
- The Rajasthan Bagar region has a number of short seasonal streams which originate from the Aravallis. These streams support agriculture in some fertile patches called **Rohi**.
- The most important river 'Luni' is a seasonal stream. The region north of Luni is known as the **Thali** or sandy plain.

Q.186) The drainage pattern in Chotanagpur plateau is an example of which type of drainage pattern?

- a) Trellised drainage pattern
- b) Dendritic drainage pattern
- c) Centripetal drainage pattern.
- d) Radial drainage pattern.

Q.186) Solution (d)

Explanation:

The chotanagpur plateau consists of a series of plateaus standing at different levels of elevation. The highest elevation of about 1100m is in the mid-western portion known as the Patlands - high level laterite plateau. From here, the land descends in all directions in a series of steps which are marked by waterfalls across the rivers. The plateau is drained by numerous rivers and streams in different directions and presents a radial drainage pattern.

Q.187) Harangi, Hemavati and Kabini are tributaries of which of the following rivers in India?

- a) Godavari
- b) Mahanadi
- c) Kaveri
- d) Krishna

Q.187) Solution (c)

Basic Information:

Name of the river	Major Tributaries
Ganga	Alaknanda, Pindar, Mandakini, Dhauliganga, Ramganga, Ghagra, Gandak, Kosi.
Yamuna	Chambal, Ken, Sind, Betwa.
Indus	Ravi, Chenab, Beas, Jhelum, Satluj.
Mahanadi	Ib, Mand, Hasdo, Sheonath, Ong, Jonk, Tel
Godavari	Manjra, Penganga, Wainganga, Wardha, Indravati, Sabari
Krishna	Koyna, Ghataprabha, Malaprabha, Bhima, Tungabhadra, Musi
Cauvery	Harangi, Hemavati, Shimsha, Arkavati, Lakshmana thirtha, Kabani
Narmada	Hiran, Barna, Kolar, Burher, Banjar, Shar, Tawa, Kundi
Tapi	Purna, Betul, Patki, Ganjal, Dathranj,

Bokad.

Q.188) National Waterway 4 is being developed on which of the following two rivers?

- a) Krishna and Mahanadi
- b) Krishna and Godavari
- c) Mahanadi and Brahmani
- d) Kaveri and Godavari

Q.188) Solution (b)

Basic Information:

Waterways	Stretch
National Waterway 1	Allahabad - Haldia stretch of Ganga
National Waterway 2	Sadiya Dubri stretch Brahmaputra
National Waterway 3	Kottapuram-Kollam stretch
National Waterway 4	1. Kakinada-Puducherry stretch of canals and the Kaluvelly Tank. 'Bhadrachalam-Rajahmundry stretch of Godavari River. 2. The bridge near village Galagali-Wazirabad-Vijayawada stretch of Krishna River.
National Waterway 5	1. Talcher-Dhamra stretch of Brahmani River. 2. Geonkhali-Charbatia stretch of coovum Canal. 3. Harbatia-Dhamra stretch of Matai River and Mahanadi Delta Rivers

Q.189) The 'Norwesters' locally known as 'KalBaisakhi' in Eastern India is known by which name in Assam?

- a) Loo
- b) Bardoli Chheerha
- c) Hwangtu
- d) Blosson showers.

Q.189) Solution (b)

Basic Information:

Famous Local Storms of India in Hot Weather Season:

Mango Shower: These are pre-monsoon showers occurring towards the end of summer, which are a common phenomena in Kerala and coastal areas of Karnataka. Locally, they are known as mango showers since they help in the early ripening of mangoes.

Blossom Shower: They are also known as coffee showers in parts of Kerala and nearby areas.

Nor Westers: These are dreaded evening thunderstorms in Bengal and Assam. Their notorious nature can be understood from the local nomenclature of 'Kalbaisakhi', a calamity of the month of Baisakh. These showers are useful for tea, jute and rice cultivation. In Assam, these storms are known as "**Bardoli Chheerha**".

Loo: Hot, dry and oppressing winds blowing in the Northern plains from Punjab to Bihar with higher intensity between Delhi and Patna.

Q.190) Consider the following statements with respect to the Indian Climate.

1. Rainfall over the country is primarily orographic.
2. Indian rainfall is generally torrential in nature.

Which of the above statements is/are correct?

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

Q.190) Solution (c)**Basic Information:****The chief characteristics of Monsoonal rainfall in India are:**

- Southwest monsoons are seasonal in character, the major part of which is received between June and September.
- Monsoonal rainfall is largely orographic.
- The amount of rainfall decreases with increasing distance from the sea.
- The monsoon rains occur in wet spells of a few days interspersed with rainless intervals known as 'Breaks'.
- The rainfall comes in the form of downpour which results in large scale runoff and soil erosion.
- There are large scale spatial variations in the distribution of rainfall. The amount of annual rainfall varies from about 12cms in western Rajasthan to over 250 cms in the west coastal plains.

Statement Analysis:

Statement 1	Statement 2
Correct	Correct
<ul style="list-style-type: none"> ● Monsoonal rainfall in India is largely orographic. ● The Himalayas, Western Ghats and Aravallis act as major relief features controlling the rainfall pattern in India. ● The Himalayas obstruct the moisture laden monsoon winds from the Indian ocean and cause rainfall in the North-eastern states and in the Indus-Ganga-Brahmaputra plain. ● The windward side of the western ghats receive more than 250 cms annual rainfall whereas most parts of the leeward side receive less than 60 cms annual rainfall. 	<p>Indian rainfall is basically torrential in nature. Because much of the rainfall is received in 3-4 months of the rainy season.</p>

Q.191) The Human Development Index (HDI) prepared by the United Nations Development Programme (UNDP) is an important data to compare the growth of the countries. HDI is the composite index of which of the following factors?

1. Life Expectancy.
2. Gross Domestic product (GDP) of a country.
3. Per capita Income.
4. Health.
5. Education.

Choose the correct option:

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

Q.191) Solution (c)

Explanation:

- The Human Development Index (HDI) is a composite index of life expectancy, education, and per capita income indicators, which are used to rank countries into four tiers of human development.
- A country scores a higher HDI when the lifespan is higher, the education level is higher, and the per capita income is higher.
- It was developed by Pakistani economist Mahbub ul Haq and Indian economist Amartya Sen and was further used to measure a country's development by the United Nations Development Programme.

Q.192) Consider the following statements about a soil group in India.

1. They are mainly found on the summits of western ghats, eastern ghats and Rajmahal hills.
2. They are formed by the process of leaching.
3. This soil group is good raw material for building construction.

The above features best describes which of the following soil groups in India.

- a) Black Soil
- b) Alluvial Soil.
- c) Red Soil.
- d) Laterite soil.

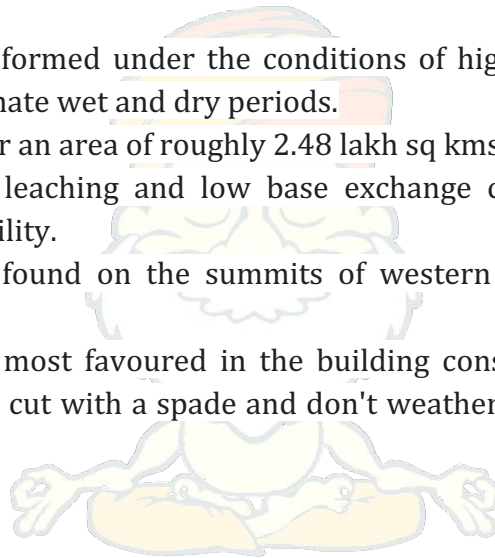
Q.192) Solution (d)**Explanation:**

The Indian Council of Agricultural Research has divided the Indian Soil into eight major types.

1. Alluvial Soils
2. Black soils
3. Red soils
4. Laterite and lateritic soils
5. Forest and Mountain soils
6. Arid and Desert soils
7. Saline and Alkaline soils
8. Peaty and Marshy soils

Features of Laterite soils in India:

- Laterite soils are formed under the conditions of high temperature and heavy rainfall with alternate wet and dry periods.
- Laterite soils cover an area of roughly 2.48 lakh sq kms.
- Due to intensive leaching and low base exchange capacity, the laterite soils generally lack fertility.
- They are mainly found on the summits of western ghats, eastern ghats and rajmahal hills.
- Laterite soils are most favoured in the building construction materials. These soils can be easily cut with a spade and don't weather much. Hence, indefinitely durable.

**Q.193) Which of the following are considered as minor industrial regions in India?**

1. Hugli region.
2. Visakhapatnam Guntur region.
3. Jaipur-Ajmer region.
4. Allahabad-Varanasi-Mirzapur region.
5. Kollam-Thiruvananthapuram region.

Choose the correct option:

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

Q.193) Solution (b)**Explanation:****Major Industrial Regions in India:**

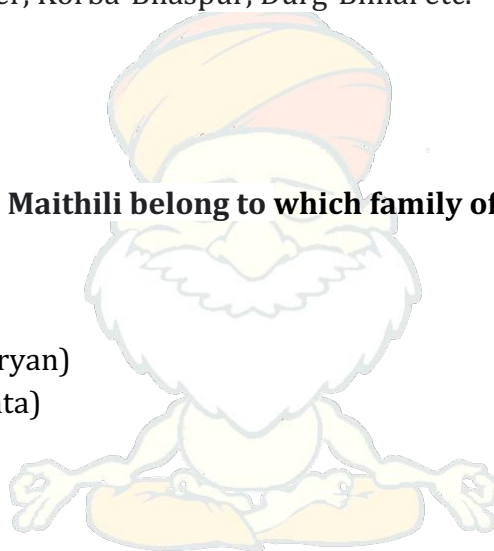
Mumbai-Pune Industrial Region, The Hugli Industrial Region, Bengaluru-Tamil Nadu Industrial Region, Gujarat Industrial Region, Chotanagpur Industrial Region, Vishakhapatnam-Guntur Industrial Region , Gurgaon-Delhi-Meerut Industrial Region, Kollam-Thiruvananthapuram Industrial Region.

Minor Industrial regions in India:

Ambala-Amritsar , Saharanpur-Muzaffarnagar-Bijnor , Indore-Dewas-Ujjain, Jaipur-Ajmer,, Northern Malabar, Middle Malabar, Adilabad-Nizamabad, Allahabad-Varanasi-Mirzapur, Bhojpur-Munger, Korba-Bilaspur, Durg-Bhilai etc.

Q.194) Sindhi, Odia and Maithili belong to which family of languages in India?

- a) Austric (Nishada)
- b) Dravidian
- c) Indo-European (Aryan)
- d) Sino-Tibetan (Kirata)

**Q.194) Solution (c)****Basic Information:**

The speakers of major Indian languages belong to four language families:

Language Family	Languages
Indo-European Family (Aryan)	Hindi, Bengali, Marathi, Urdu, Gujarati, Punjabi, Kashmiri, Rajasthani, Sindhi, Maithili and Odia
Dravidian Family (Dravida),	Kannada, Tamil, Telugu, Malayalam
Austric Family (Nishada)	Kol, Mundari, Nicobari, Khasi, Santhali, Ho,

	Birhor.
Sino-Tibetan family (Kirata)	Nepalese, Bodo, Manipuri

Q.195) Consider the following pairs:

<u>Term</u>	<u>Relates to</u>
1. Fazendas.	: Coffee estates
2. Kolkhoz	: Rubber Plantations
3. Frigorificos	: Slaughter houses

Which of the above pairs is/are correctly matched?

- 2 only
- 1 and 3 only
- 1 and 2 only
- 1, 2 and 3

Q.195) Solution (b)

Explanation:

- Brazil is the world's largest exporter of coffee, and it used to be one of the largest exporters of cacao. Coffee estates in Brazil are called '**Fazendas**'.
- Rubber plantation is done in Equatorial rainforests of Amazon. **Manaus** in Brazil is the rubber collection center of Brazil.
- Rosario and Buenos Aires have well developed slaughter houses called '**Frigorificos**'.
- A '**Kolkhoz**' was a form of collective farming in the Soviet Union (Russia).

Q.196) Consider the following pairs with respect to water harvesting methods

<u>Water Harvesting method</u>	<u>Place</u>
1. Phad System	Maharashtra
2. Ahar Pynes	Bihar
3. Zabo	Ladakh.

Which of the above are correctly matched ?

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

Q.196) Solution (b)**Explanation:**

Traditional water harvesting systems in India:

Water harvesting system	Region/State
Khund, Jhalara, Bawari, Khadins, Baolis	Rajasthan
Panam Keni	Wayanad
Kuhls	Himachal Pradesh
Zabo or ruza system	Nagaland
Ahar pynes	Bihar
Zing	Ladakh
Phad system	Maharashtra

Q.197) Which one of the following is not an approach in human geography?

- a) Spatial Organisation
- b) Areal differentiation
- c) Exploration and description
- d) Socio-political approach.

Q.197) Solution (d)**Explanation:**

Approaches	Features
Exploration and description	Imperial and trade interests prompted the discovery and exploration of new areas. An encyclopaedic description of the area formed an important aspect of the geographer's account.
Regional analysis	Elaborate descriptions of all aspects of a region were undertaken. The idea was that all the regions were part of a whole, i.e. (the earth); so, understanding the parts in totality would lead to an understanding of the whole.
Areal differentiation	The focus was on identifying the uniqueness of any region and understanding how and why it was different from others.
Spatial organisation	Marked by the use of computers and sophisticated statistical tools. Laws of physics were often applied to map and analyse human phenomena. This phase was called the quantitative revolution. The main objective was to identify mappable patterns for different human activities.
Emergence of humanistic, radical and behavioural schools	Discontentment with the quantitative revolution and its dehumanised manner of doing geography led to the emergence of three new schools of thought of human geography in the 1970s. Human geography was made more relevant to the socio-political reality by the emergence of these schools of thought. Consult the box below to know a little bit more about these schools of thought.

Q.198) Consider the following statements:

1. Palghat gap separates the The western ghats from the main Sahyadri range
2. Gudalur is the place where The Nilgiris join the Sahyadris.

Which of the above statements is/are correct?

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

Dedicated **HOTLINE (Communication channel) for all UPSC/IAS Aspirants**

Speak With the Founders and Core Team of Iasbaba on Telephone
Regarding 'Any Queries' Related to UPSC Preparation in General
or Subject-Specific Doubts.

2 HOURS DAILY (EXCEPT ON SUNDAYS) FROM 5PM TO 7 PM

- ☎ UPSC PREPARATION STRATEGY & CURRENT AFFAIRS – **9986190082**
- ☎ ENVIRONMENT & SCIENCE AND TECHNOLOGY – **9986193016**
- ☎ GEOGRAPHY & HISTORY – **9591106864**
- ☎ POLITY & ECONOMICS – **9899291288**

'ASK YOUR BABA' - Special feature to clear your doubts on the
60 Day Platform (Online from 10am - 10 pm)

WWW.IASBABA.COM

Q.198) Solution (c)

Basic Information:

The western ghats of India:

- The Western Ghats or Sahyadris runs north to south along the western edge of the Deccan Plateau and separates the plateau from a narrow coastal plain along the Arabian Sea.
- The range starts near the border of Gujarat and Maharashtra, south of the Tapti River, and runs approximately 1600 km through the states of Maharashtra, Goa, Karnataka, Tamil Nadu and Kerala ending at Kanyakumari.

- Western Ghats are known as Sahyadri in northern Maharashtra, Sahya Parvatham in Kerala and Nilagiri Malai in Tamil Nadu. Western Ghats are home to many hill stations like Matheran, Lonavala-Khandala, Mahabaleshwar, Panchgani, Amboli Ghat, Kudremukh and Kodagu.
- The extreme northern parts of Western Ghats falls in the Dangs district of Gujarat, known for Dang (Bamboo) forests.
- Anaimudi is 2,695 metres which is the highest peak in Western Ghats. Mullayanagiri is the highest peak in Karnataka at 1,950 meters. The smaller ranges of the Western Ghats include the Cardamom Hills and the Nilgiri Hills. Cardamom hills are located in southeast Kerala and southwest Tamil Nadu.
- There are many important passes in Western Ghats such as Tamhini Ghat, Palakkad Gap, Naneghat, Kasara ghat etc.

Statement Analysis:

Statement 1	Statement 2
Correct	Correct
The southern part of the western ghats is separated from the main sahyadris by the palghat gap	Nilgiris joins the Sahyadris near Gudalur. They rise abruptly to over 2000 mts and mark the junction of western ghats and eastern ghats

Q.199) Consider the following pairs with respect to prayags in India:

Prayag**Confluence of Rivers**

- | | |
|------------------|-------------------------------|
| 1. Rudra prayag | Alakananda and Mandakini |
| 2. Vishnu Prayag | Dhauli ganga and Vishnu ganga |
| 3. Karna Prayad | Alakananda and pindar. |
| 4. Dev prayag | Alakananda and Bhagirathi |

Which of the above pairs is/are correctly matched?

- 4 only
- 1, 2 and 4 only
- 1, 3 and 4 only
- 1, 2, 3 and 4

Q.199) Solution (d)

Explanation:

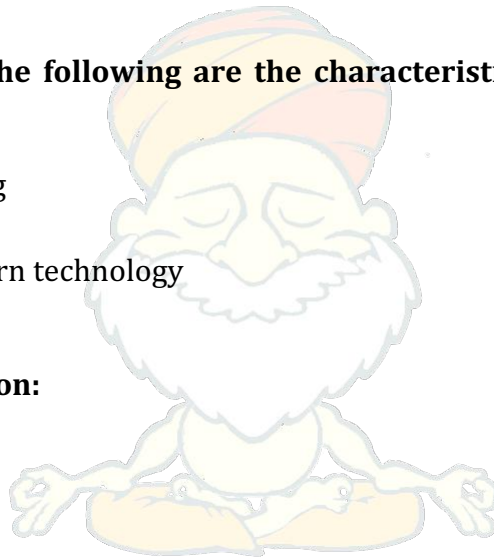
Prayags	Confluence of Rivers
Rudraprayag	Alakananda and Mandakini
DevPrayag	Alakananda and Bhagirathi
Vishnu Prayag	Dhaulti and vishnu ganga
KarnaPrayag	Alakananda and Pindar

Q.200) Which among the following are the characteristic features of plantation agriculture?

1. Multi crop farming
2. Labour intensive.
3. Adoption of modern technology
4. Capital intensive.

Choose the correct option:

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



Q.200) Solution (c)

Explanation:

The form of commercial farming where crops are grown for profit is called plantation agriculture

The major characteristics of plantation farming:

- It is a single crop farming practised on a large area.
- Crops are mainly grown for the market.
- It is both labour intensive and capital intensive.
- It has an interface of agriculture and Industry.

- Modern technologies are adopted for large scale cultivation.
- Developed networks of transport and communication connecting the plantation processing industries and markets play an important role in the development of plantations.

Examples of plantation crops are tea, coffee, rubber, sugar cane and banana etc.

