

ForumIAS

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Prelims Marathon

21th to 27th June, 2021

HISTORY

ECONOMICS

POLITY

SCIENCE AND TECHNOLOGY

GEOGRAPHY AND ENVIRONMENT

Solar system & the Earth & basics of Latitude and Longitude

Q.1) The Nebular Hypothesis was developed by which of the following?

- a) Immanuel Kant
- b) Laplace
- c) Alfred Wagner
- d) Both A & B

ANS: D

Explanation: A large number of hypotheses were put forth by different philosophers and scientists regarding the origin of the earth.

- One of the earlier and popular arguments was by German philosopher Immanuel Kant.
- Mathematician Laplace revised it in 1796. It is known as Nebular Hypothesis.

Source: Fundamental of Physical Geography, Chapter – 2

Q.2) “The hypothesis/theory considered that the planets were formed out of a cloud of material associated with a youthful sun, which was slowly rotating” – is described about which of the following?

- a) Hubble’s Hypothesis
- b) Binary Theory
- c) Big Bang Theory
- d) Nebular Hypothesis

ANS: D

Explanation: One of the earlier and popular arguments was by German philosopher Immanuel Kant. Mathematician Laplace revised it in 1796. It is known as Nebular Hypothesis.

- The hypothesis considered that the planets were formed out of a cloud of material associated with a youthful sun, which was slowly rotating.
- Later in 1900, Chamberlain and Moulton considered that a wandering star approached the sun. As a result, a cigar-shaped extension of material was separated from the solar surface.
- As the passing star moved away, the material separated from the solar surface continued to revolve around the sun and it slowly condensed into planets.

Source: Fundamental of Physical Geography, Chapter – 2

Q.3) Who among the following discovered the relationship between the intrinsic brightness of a variable star and the time it took to vary in brightness, making it possible for others to estimate the distance of these faraway stars, conclude that additional galaxies exist, and begin mapping the Universe?

- a) Kepler
- b) Edwin Hubble
- c) Henrietta Leavitt
- d) Laplace

ANS: C

Explanation: Henrietta Leavitt discovered the relationship between the intrinsic brightness of a variable star and the time it took to vary in brightness, making it possible for others to estimate the distance of these faraway stars, conclude that additional galaxies exist, and begin mapping the Universe.

Source: <https://www.khanacademy.org/humanities/big-history-project/big-bang/how-did-big-bang-change/a/henrietta-leavitt>.

Q.4) With reference to the solar system, which of the following statements is/are correct?

1. Mars, Jupiter and Saturn are also called as Jovian planets.
2. The asteroid belt lies between Mars and Jupiter.

Select the correct answer using the codes given below:

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

ANS: B

Explanation: Out of the eight planets, mercury, Venus, earth and mars are called as the inner planets as they lie between the sun and the belt of asteroids the other four planets are called the outer planets.

- Alternatively, the first four are called Terrestrial, meaning earth-like as they are made up of rock and metals, and have relatively high densities.
- The rest four are called Jovian or Gas Giant planets. Jovian means Jupiter-like.

Source: Fundamental of Physical Geography, Chapter – 2

Q.5) Consider the following statements:

1. The intensity of solar winds is very high on Jovian Planets.
2. The gravity of terrestrial planets is lower than the Jovian planets.

Which of the statements given above is/are correct?

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

ANS: B

Explanation: The difference between terrestrial and Jovian planets can be attributed to the following conditions:

- The terrestrial planets were formed in the close vicinity of the parent star where it was too warm for gases to condense to solid particles. Jovian planets were formed at quite a distant location.
- The solar wind was most intense nearer the sun; so, it blew off lots of gas and dust from the terrestrial planets. The solar winds were not all that intense to cause similar removal of gases from the Jovian planets.
- The terrestrial planets are smaller and their lower gravity could not hold the escaping gases.

Source: Fundamental of Physical Geography, Chapter – 2

Q.6) Which of the following Planet has lowest number of satellites?

- a) Earth
- b) Jupiter
- c) Neptune
- d) Uranus

ANS: A

Explanation:

The Solar System

	<i>Mercury</i>	<i>Venus</i>	<i>Earth</i>	<i>Mars</i>	<i>Jupiter</i>	<i>Saturn</i>	<i>Uranus</i>	<i>Neptune</i>
Distance*	0.387	0.723	1.000	1.524	5.203	9.539	19.182	30.058
Density@	5.44	5.245	5.517	3.945	1.33	0.70	1.17	1.66
Radius#	0.383	0.949	1.000	0.533	11.19	9.460	4.11	3.88
Satellites	0	0	1	2	about 53	about 53	about 27	13

Source: Fundamental of Physical Geography, Chapter – 2

Q.7) Consider the following pairs:

- | | | |
|--------------|---|-----------------|
| Epoch | : | Major event |
| 1. Holocene | : | Modern Man |
| 2. Paleocene | : | Anthropoid Ape |
| 3. Eocene | : | Frogs & Turtles |

Which of the statements given above is/are correct?

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

ANS: A

Explanation:

Geological Time Scale

<i>Eons</i>	<i>Era</i>	<i>Period</i>	<i>Epoch</i>	<i>Age/ Years Before Present</i>	<i>Life/ Major Events</i>
		Quaternary	Holocene Pleistocene	0 - 10,000 10,000 - 2 million	Modern Man Homo Sapiens
	Cainozoic (From 65 million years to the present times)	Tertiary	Pliocene	2 - 5 million	Early Human Ancestor Ape: Flowering Plants and Trees Anthropoid Ape Rabbits and Hare Small Mammals : Rats – Mice
			Miocene	5 - 24 million	
			Oligocene	24 - 37 million	
			Eocene	37 - 58 Million	
			Palaeocene	57 - 65 Million	
	Mesozoic 65 - 245 Million Mammals	Cretaceous Jurassic Triassic		65 - 144 Million 144 - 208 Million 208 - 245 Million	Extinction of Dinosaurs Age of Dinosaurs Frogs and turtles
	Palaeozoic 245 - 570 Million	Permian		245 - 286 Million	Reptile dominate-replace amphibians First Reptiles: Vertebrates: Coal beds Amphibians First trace of life on land: Plants First Fish No terrestrial Life : Marine Invertebrate
		Carboniferous		286 - 360 Million	
		Devonian		360 - 408 Million	
		Silurian		408 - 438 Million	
		Ordovician Cambrian		438 - 505 Million 505 - 570 Million	
Proterozoic Archean	Pre-Cambrian 570 Million - 4,800 Million			570 - 2,500 Million	Soft-bodied arthropods Blue green Algae: Unicellular bacteria Oceans and Continents form – Ocean and Atmosphere are rich in Carbon dioxide
Hadean				2,500 - 3,800 Million 3,800 - 4,800 Million	
Origin of Stars	5,000 - 13,700 Million			5,000 Million	Origin of the sun
Supernova				12,000 Million	Origin of the universe
Big Bang				13,700 Million	

Source: Fundamental of Physical Geography, Chapter – 2

Q.8) The term 'Ekman Spiral' is related to which of the following?

- Tsunami
- Cyclone
- Coriolis Effect
- Jet stream

ANS: C

Explanation: The Ekman spiral, named after Swedish scientist Vagn Walfrid Ekman (1874-1954) who first theorized it in 1902, is a consequence of the Coriolis Effect.

- When surface water molecules move by the force of the wind, they, in turn, drag deeper layers of water molecules below them.
- Each layer of water molecules is moved by friction from the shallower layer, and each deeper layer moves more slowly than the layer above it, until the movement ceases at a depth of about 100 meters (330 feet).

- Like the surface water, however, the deeper water is deflected by the Coriolis Effect—to the right in the Northern Hemisphere and to the left in the Southern Hemisphere.
- As a result, each successively deeper layer of water moves more slowly to the right or left, creating a spiral effect.
- Because the deeper layers of water move more slowly than the shallower layers, they tend to “twist around” and flow opposite to the surface current.

Source: G C Leong

Q.9) With reference to the “International Date line”, which of the following statements is/are correct?

1. It functions as a “line of demarcation”.
2. It has legal international status.
3. It is a straight line.

Select the correct answer using the codes given below:

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

ANS: A

Explanation: The International Date Line, established in 1884, passes through the mid-Pacific Ocean and roughly follows a 180 degrees longitude north-south line on the Earth.

- It is located halfway round the world from the prime meridian—the zero degrees longitude established in Greenwich, England, in 1852.
- The International Date Line functions as a “line of demarcation” separating two consecutive calendar dates.
- When you cross the date line, you become a time traveler of sorts! Cross to the west and its one day later; cross back and you’ve “gone back in time.”
- Despite its name, the International Date Line has no legal international status and countries are free to choose the dates that they observe.
- While the date line generally runs north to south from pole to pole, it zigzags around political borders such as eastern Russia and Alaska’s Aleutian Islands.

Source: G C Leong

Q.10) “EGA-WLS formula” is related to which of the following?

- a) Atmospheric pressure
- b) Temperature measurement
- c) Ocean depth measurement
- d) Time measurement

ANS: D

Explanation: Since the earth makes one complete rotation of 360° in one day or 24 hours, it passes through 15° in one hour or 1° in 4 minutes.

- The earth rotates from west to east, so every 15° we go eastwards, local time is advanced by 1 hour.
- If we know G.M.T, to find local time, we merely have to add or subtract the difference in the number of hours from the given longitude, as illustrated below.
- A simple memory aid for this will be East-Gain-Add (E.G.A.) and West-Lose-Subtract (W.L. S.).

Source: G C Leong

Continents & Oceans and Ocean Currents

Q.1) Which of the following statements is/are correct about the “Solar System”?

1. Venus and Uranus have a retrograde or clockwise rotation around their axis.
2. Venus is considered as Earth’s twin because of their close proximity in size, mass and density.

Select the correct answer using the codes given below:

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

ANS: C

Explanation: Prograde rotation indicates that the motion is in the same direction as the Sun’s rotation. Retrograde rotation is in the opposite direction.

- Most planets in our solar system, including Earth, rotate counter-clockwise or prograde direction, but Venus and Uranus are said to have a retrograde or clockwise rotation around their axis.
- The tilt angle of a planet is measured relative to the orbital plane of the planet, and most planets’ axes form an almost perpendicular angle to the orbital plane.
- Venus, twice the distance away from the sun, is the next closest planet after Mercury. It is often considered as Earth’s twin because of their close proximity in size, mass and density.

Source: G C leong

Q.2) Which of the following statements is/are correct about “Great and Small Circles”?

1. A Great Circle is any circle that circumnavigates the Earth and passes through the center of the Earth.
2. All longitudes are great circles.
3. All latitudes are great circles.

Select the correct answer using the codes given below:

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

ANS: B

Explanation: A Great Circle is any circle that circumnavigates the Earth and passes through the center of the Earth.

- A great circle always divides the Earth in half, thus the Equator is a great circle (but no other latitudes) and all lines of longitude are great circles.
- The shortest distance between any two points on the Earth lies along a great circle. Circles which do not pass through the centre of the earth are the small circles.

Source: G C Leong

Q.3) Which of the following statements is/are correct about “Lithosphere”?

1. It is bounded by the atmosphere above and the Asthenosphere below.
2. Oceanic lithosphere is denser than Continental lithosphere.

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Select the correct answer using the codes given below:

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

ANS: C

Explanation: The lithosphere is the solid, outer part of the Earth. The lithosphere includes the brittle upper portion of the mantle and the crust, the outermost layers of Earth's structure.

- It is bounded by the atmosphere above and the Asthenosphere (another part of the upper mantle) below.
- Although the rocks of the lithosphere are still considered elastic, they are not viscous.
- The Asthenosphere is viscous, and the lithosphere-Asthenosphere boundary (LAB) is the point where geologists and rheologists—scientists who study the flow of matter—mark the difference in ductility between the two layers of the upper mantle.
- Ductility measures a solid material's ability to deform or stretch under stress. The lithosphere is far less ductile than the asthenosphere.
- There are two types of lithosphere: oceanic lithosphere and continental lithosphere. Oceanic lithosphere is associated with oceanic crust, and is slightly denser than continental lithosphere.

Source: <https://www.nationalgeographic.org/encyclopedia/lithosphere/>

Q.4) Consider the following statements:

1. Epeirogenic movements are mainly associated with the formation of continents and plateaus.
 2. Orogenic movements are mainly associated with the formation of mountain building.
- Which of the statements given above is/are NOT correct?

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

ANS: D

Explanation: Vertical movements are mainly associated with the formation of continents and plateaus. They are also called as Epeirogenic movements.

Horizontal forces act on the earth's crust from side to side to cause these movements. They are also known as orogenic movements (mountain building).

Source: <https://www.nationalgeographic.org/encyclopedia/lithosphere/>

Q.5) Which of the following are the causes of "Ocean Currents"?

1. Level of salinity
2. Temperature
3. The Earth's rotation

Select the correct answer using the codes given below:

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

ANS: D

Explanation: Surface currents in the ocean are driven by global wind systems that are fueled by energy from the sun.

- Patterns of surface currents are determined by wind direction, Coriolis forces from the Earth's rotation, and the position of landforms that interact with the currents.
- Surface wind-driven currents generate upwelling currents in conjunction with landforms, creating deepwater currents.
- Currents may also be caused by density differences in water masses due to temperature (thermo) and salinity (haline) variations via a process known as thermohaline circulation.
- These currents move water masses through the deep ocean—taking nutrients, oxygen, and heat with them.
- Occasional events such as huge storms and underwater earthquakes can also trigger serious ocean currents, moving masses of water inland when they reach shallow water and coastlines.
- Earthquakes may also trigger rapid down slope movement of water-saturated sediments, creating strong turbidity currents.

Source: G C Leong

Q.6) Which of the following are “Cold Ocean Currents”?

1. The Gulf Stream
2. The North Atlantic Drift
3. The Labrador Current
4. The Oyashio Current

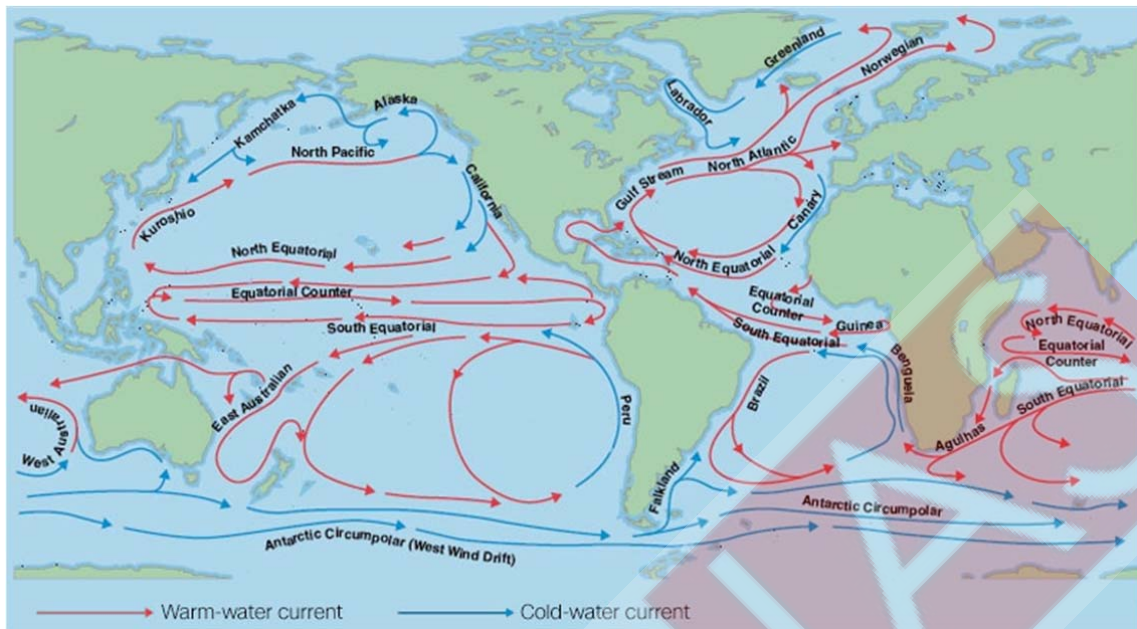
Select the correct answer using the codes given below:

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

ANS: C

Explanation: Cold currents flow toward the equator on the eastern side of ocean basins. Examples of cold ocean currents include the Canary Current in the North Atlantic, the California Current in the North Pacific, and the Benguela Current in the South Atlantic.

- Cold currents can also flow out of far northern regions. The Labrador Current flows out of Baffin Bay and past Labrador, the coastal part of the Canadian province of Newfoundland.
- The current carries icebergs from Baffin Bay, creating a hazard for ships in the North Atlantic. The Labrador Current meets the Gulf Stream off the coast of Newfoundland.
- When warm, moist air from the Gulf Stream blows over the cold Labrador Current, water vapor condenses. This results in some of the thickest fogs in the world.
- Two other important cold currents originate in northern regions. The East Greenland Current flows into the North Atlantic through the Strait of Denmark.
- The Oyashio Current flows through the Bering Strait between Siberia and Alaska and into the North Pacific.



Source: G C Leong

Q.7) Which of the following factors are affecting the ocean salinity?

1. Precipitation
2. Freezing of Ice
3. Evaporation
4. Wind flow

Select the correct answer using the code given below:

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

ANS: D

Explanation: All waters in nature, whether rain water or ocean water, contain dissolved mineral salts. Salinity is the term used to define the total content of dissolved salts in sea water. Factors affecting ocean salinity are mentioned below:

- 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 fresh water flow from rivers, and in Polar Regions by the processes of freezing and thawing of ice.
- Wind, also influences 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.

Source: NCERT - Fundamental of Physical Geography

Q.8) Which of the following hills/mountains is/are example/examples of “Residual Mountains”?

1. Aravalli hills
2. Nallamalla hills
3. Veliconda hills

Select the correct answer using the codes given below:

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

ANS: D

Explanation: Mountains that have been eroded by the agents of degradation such as winds, rain, frost and running water leaving behind only the hard rocks are known as residual mountains.

- These hard rocks that are left behind are known as the residual mountains.
- Examples of Residual Mountains in India are the Nallamala hills, Mahendragiri hills, the Aravali hills, the Javadi hills, the Veliconda hills, and the Palkonda range.

Source: ICSE – Total Geography Class – IX

Q.9) Which of the following are examples of Fold Mountains?

- 1. Himalayas
- 2. Caucasus
- 3. Atlas

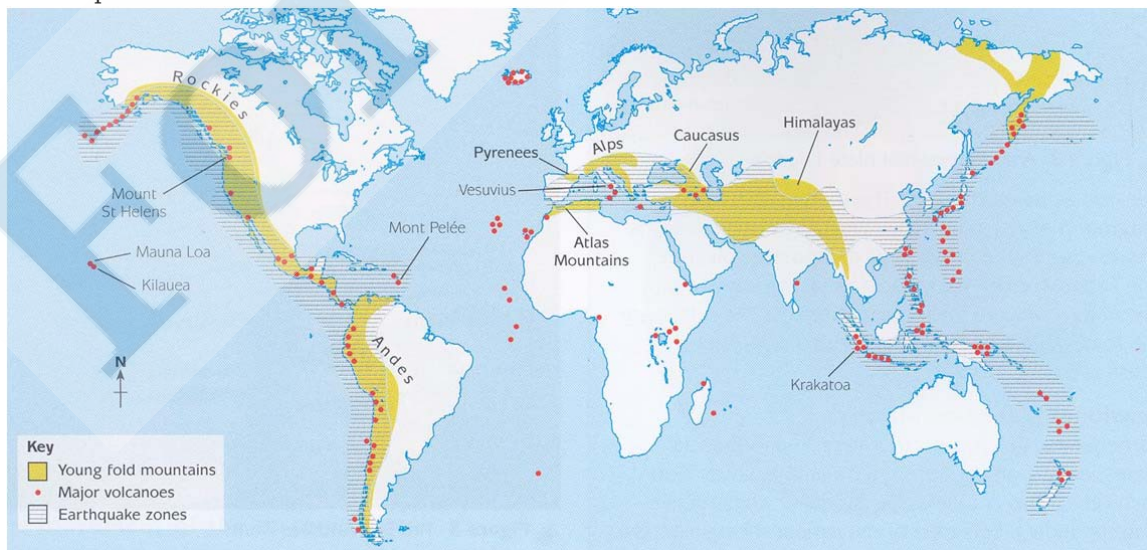
Select the correct answer using the code given below:

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

ANS: D

Explanation: Fold Mountains are created through a process called orogeny. An orogenic event takes millions of years to create a fold mountain.

- When a tectonic plate gets pressure from two sides, it gets folded. Some of its portion becomes elevated and forms the mountains.
- The depressions form the valleys. The Himalayas, the Rockies, the Andes and the Alps are examples of Fold Mountain.
- They are the young mountains of the world and hence they have some of the highest peaks of the world.



Source: ICSE – Total Geography Class – IX

Q.10) Which of the following is/are correctly matched?

Mechanism/Process	:	Rock
1. Mechanically formed sedimentary rock	:	Sandstone
2. Organically formed sedimentary rock	:	Dolomites
3. Chemically formed sedimentary rock	:	Shale

Select the correct answer using the code given below:

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

ANS: B

Explanation: Sedimentary rocks are formed by the accumulation of sediments. There are three basic types of sedimentary rocks.

- Clastic sedimentary rocks such as breccia, conglomerate, sandstone, siltstone, and shale are formed from mechanical weathering debris.
- Chemical sedimentary rocks, such as rock salt, iron ore, chert, flint, some dolomites, and some limestone, form when dissolved materials precipitate from solution.
- Organic sedimentary rocks such as coal, some dolomites, and some limestone, form from the accumulation of plant or animal debris.

Source: G C Leong

Geomorphology and Bio – Geography

Q.1) Consider the following statements regarding the Dharwar Rock System:

1. It is the first metamorphic sedimentary rocks in India.
2. They were first studied in Dharwar region of Karnataka.

Which of the statements given above is/are correct?

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

ANS: C

Explanation: Dharwar system is later than the Archean system but older than the other systems.

- The Dharwar period of rock formation has been largely fixed from 2500 million years ago to 1800 million years ago.
- Dharwar Rock System is special because it is the first metamorphic sedimentary rocks in India.
- They are named Dharwar system because they were first studied in Dharwar region of Karnataka.
- But they are also found in Aravallis, Tamil Nadu, Chota-nagpur plateau, Meghalaya, Delhi, and the Himalayas region.
- The Dharwar rocks are rich in iron ore, manganese, lead, zinc, gold, silver etc.

Source: NCERT – XI Fundamentals of Physical Geography

Q.2) The “oxisols or ferralsols” are predominantly found in which of the following areas?

- a) Tropical areas
- b) Polar areas
- c) Desert areas
- d) Temperate areas

ANS: A

Explanation: Latosols are soils found under tropical rainforests which have a relatively high content of iron and aluminum oxides. They are typically classified as oxisols or ferralsols.

Source: G C Leong

Q.3) Arrange the following minerals according to their hardness in descending order:

1. Talc
2. Gypsum
3. Fluorite
4. Diamond

Select the correct answer using the codes given below:

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

ANS: C

Explanation: Hardness — relative resistance being scratched; ten minerals are selected to measure the degree of hardness from 1-10. They are:

1. talc;
2. gypsum;
3. calcite;
4. fluorite;
5. apatite;
6. feldspar;
7. quartz;
8. topaz;
9. corundum;
10. Diamond.

Source: NCERT – XI Fundamentals of Physical Geography

Q.4) Consider the following statements:

1. The phenomenon of wearing down of relief variations of the surface of the earth through erosion is known as gradation.
2. The earth's surface is being continuously subjected to by external forces originating within the earth's atmosphere and by internal forces from within the earth.

Which of the statements given above is/are NOT correct?

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

ANS: D

Explanation: The earth's crust is dynamic. You are well aware that it has moved and moves vertically and horizontally. Of course, it moved a bit faster in the past than the rate at which it is moving now.

- The differences in the internal forces operating from within the earth which built up the crust have been responsible for the variations in the outer surface of the crust.
- The earth's surface is being continuously subjected to external forces induced basically by energy (sunlight).
- Of course, the internal forces are still active though with different intensities. That means, the earth's surface is being continuously subjected to by external forces originating within the earth's atmosphere and by internal forces from within the earth.
- The external forces are known as exogenic forces and the internal forces are known as endogenic forces.
- The actions of exogenic forces result in wearing down (degradation) of relief/elevations and filling up (aggradation) of basins/ depressions, on the earth's surface.
- The phenomenon of wearing down of relief variations of the surface of the earth through erosion is known as gradation.

Source: NCERT – XI Fundamentals of Physical Geography

Q.5) Which of the following are geomorphic agents?

1. Glaciers
2. Winds
3. Waves

Select the correct answer using the codes given below:

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

ANS: D

Explanation: A process is a force applied on earth materials affecting the same.

- An agent is a mobile medium (like running water, moving ice masses, wind, waves and currents etc.) which removes, transports and deposits earth materials.
- Running water, groundwater, glaciers, wind, waves and currents, etc., can be called geomorphic agents.

Source: NCERT – XI Fundamentals of Physical Geography

Q.6) Which of the following events are comes under diastrophism?

1. Orogenic movement
2. Plate tectonics
3. Earthquakes

Select the correct answer using the codes given below:

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

ANS: D

Explanation: All processes that move, elevate or build up portions of the earth's crust come under diastrophism. They include:

- orogenic processes involving mountain building through severe folding and affecting long and narrow belts of the earth's crust;
- epeirogenic processes involving uplift or warping of large parts of the earth's crust;
- earthquakes involving local relatively minor movements;
- plate tectonics involving horizontal movements of crustal plates.

Source: NCERT – XI Fundamentals of Physical Geography

Q.7) Which of the following are the processes of chemical weathering?

1. Carbonation
2. Exfoliation
3. Thermal expansion

Select the correct answer using the codes given below:

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

ANS: A

Explanation: A group of weathering processes viz; solution, carbonation, hydration, oxidation and reduction act on the rocks to decompose, dissolve or reduce them to a fine clastic state through chemical reactions by oxygen, surface and/or soil water and other acids.

- Water and air (oxygen and carbon dioxide) along with heat must be present to speed up all chemical reactions.

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- Over and above the carbon dioxide present in the air, decomposition of plants and animals increases the quantity of carbon dioxide underground.
- These chemical reactions on various minerals are very much similar to the chemical reactions in a laboratory.
- There are five major types of mechanical weathering: thermal expansion, frost weathering, exfoliation, abrasion, and salt crystal growth.

Source: NCERT – XI Fundamentals of Physical Geography

Q.8) The words “macchia, maquis and chaparral” are related to which of the following?

- a) Shrub vegetation
- b) Tropical vegetation
- c) Tundra vegetation
- d) Alpine vegetation

ANS: A

Explanation: Chaparral is sclerophyllous vegetation that is tolerant of seasonal drought.

- It consists of small trees, woody grasses and oleose, xerophytic shrubs that form a nearly continuous cover of intertwined branches.
- Usually less than 10 per cent of the ground is bare, though the proportion may be higher at inhospitable sites.
- Where annual precipitation is in the range 250–500 mm, plants may be only 1–2 m high, while crowns may reach 3.5–4 m where precipitation is 500–750 mm.
- In California chaparral is common at elevations of 300–1500 m. It occupies 3.4 million ha (8.5 per cent) of the state, particularly in its southern part and at moderate elevations.
- The European synonym for chaparral, maquis (in Italian, macchia, plural macchie), is derived from the Corsican word for a species of sun rose (Cistus), which is often a striking component of the maquis community.

Source: G C Leong

Q.9) Consider the following statements regarding the “Tropical Thorn Forest”:

1. These occur in areas with rainfall less than 50 cm.
2. Important species found here are oak, teak and sal.
3. The forests are given an expression of scrub vegetation.

Which of the statements given above is/are correct?

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

ANS: B

Explanation: Tropical thorn forests occur in the areas which receive rainfall less than 50 cm.

- These consist of a variety of grasses and shrubs. It includes semi-arid areas of south west Punjab, Haryana, Rajasthan, Gujarat, Madhya Pradesh and Uttar Pradesh.
- In these forests, plants remain leafless for most part of the year and give an expression of scrub vegetation.
- Important species found are babool, ber, and wild date palm, khair, neem, khejri, palas, etc. Tussocky grass grows upto a height of 2 m as the under growth.

Source: NCERT – XI Fundamentals of Physical Geography

Q.10) The term “Abyssal Plain” is related to which of the following?

- a) The plain which is formed due to glacial deposition.
- b) The plain which is formed due to river deposits.
- c) The underground plains are formed due water deposition and erosion.
- d) It is an underwater plain on the deep ocean floor.

ANS: D

Explanation: An abyssal plain is an underwater plain on the deep ocean floor, usually found at depths between 3,000 metres (9,800 ft) and 6,000 metres (20,000 ft). Lying generally between the foot of a continental rise and a mid-ocean ridge, abyssal plains cover more than 50% of the Earth's surface.

Source: NCERT – XI Fundamentals of Physical Geography

Climatology

Q.1) With reference to the solar radiation, which of the following statements is/are correct?

1. Earth receives energy from sun through short wavelengths.
2. Due to the shape of geoid of earth the sun's rays fall obliquely at the top of the atmosphere and the earth intercepts a very small portion of the sun's energy.

Select the correct answer using the codes given below:

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

ANS: C

Explanation: The earth's surface receives most of its energy in short wavelengths.

- The energy received by the earth is known as incoming solar radiation which in short is termed as insolation.
- As the earth is a geoid resembling a sphere, the sun's rays fall obliquely at the top of the atmosphere and the earth intercepts a very small portion of the sun's energy.
- On an average the earth receives 1.94 calories per sq. cm per minute at the top of its atmosphere.

Source: NCERT Fundamentals of Physical Geography

Q.2) Which of the following factor/factors is/are affecting the solar radiation which reaches earth's surface?

1. Absorption and Scattering
2. Local variations in the atmosphere
3. Latitude of the location

Select the correct answer using the codes given below:

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

ANS: D

Explanation: While the solar radiation incident on the Earth's atmosphere is relatively constant, the radiation at the Earth's surface varies widely due to:

- atmospheric effects, including absorption and scattering;
- local variations in the atmosphere, such as water vapour, clouds, and pollution;
- latitude of the location; and
- the season of the year and the time of day.

The above effects have several impacts on the solar radiation received at the Earth's surface.

- These changes include variations in the overall power received, the spectral content of the light and the angle from which light is incident on a surface.
- In addition, a key change is that the variability of the solar radiation at a particular location increases dramatically.
- The variability is due to both local effects such as clouds and seasonal variations, as well as other effects such as the length of the day at particular latitude.

- Desert regions tend to have lower variations due to local atmospheric phenomena such as clouds. Equatorial regions have low variability between seasons.

Source: NCERT Fundamentals of Physical Geography

Q.3) The amount and the intensity of insolation vary during a day, in a season and in a year. Which of the following factors are influences the insolation?

1. The rotation of the earth
2. The angle of inclination of the sun's rays
3. The transparency of the atmosphere
4. The configuration of land

Select the correct answer using the codes given below:

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

ANS: D

Explanation: The amount and the intensity of insolation vary during a day, in a season and in a year. The factors that cause these variations in insolation are:

- 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 land in terms of its aspect.

Source: NCERT Fundamentals of Physical Geography

Q.4) Which of the following clouds are delicate, feathery clouds that are made mostly of ice crystals?

- a) Cumulus clouds
- b) Cirrus clouds
- c) Altocumulus clouds
- d) Stratocumulus clouds

ANS: B

Explanation: All clouds are made up of basically the same thing: water droplets or ice crystals that float in the sky.

But all clouds look a little bit different from one another, and sometimes these differences can help us predict a change in the weather.

- Cirrus clouds are delicate, feathery clouds that are made mostly of ice crystals. Their wispy shape comes from wind currents which twist and spread the ice crystals into strands.
- Altocumulus clouds have several patchy white or gray layers, and seem to be made up of many small rows of fluffy ripples. They are lower than cirrus clouds, but still quite high. They are made of liquid water, but they don't often produce rain.
- Cumulus clouds look like fluffy, white cotton balls in the sky. They are beautiful in sunsets, and their varying sizes and shapes can make them fun to observe!
- Stratocumulus clouds are patchy gray or white clouds that often have a dark honeycomb-like appearance.

Source: NCERT XI Fundamentals of Physical geography and G C Leong

Q.5) Which of the following is/are ideal conditions for temperature inversion?

1. Long nights, so that the outgoing radiation is greater than the incoming radiation.
2. Cloudy weather.
3. Rapid and unstable air.

Select the correct answer using the code given below:

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

ANS: A

Explanation: Temperature inversion is a reversal of the normal behavior of temperature in the troposphere, in which a layer of cool air at the surface is overlain by a layer of warmer air. (Under normal conditions, temperature usually decreases with height).

Ideal Conditions for Temperature Inversion:

- Long nights, so that the outgoing radiation is greater than the incoming radiation.
- Clear skies, which allow unobstructed escape of radiation.
- Calm and stable air, so that there is no vertical mixing at lower levels.

Source: NCERT XI Fundamentals of Physical geography

Q.6) Consider the following statements regarding the Savanna Climate:

1. It has continuous dry season throughout the year.
2. It is spread throughout the tropical and temperate regions.

Which of the statements given above is/are correct?

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

ANS: D

Explanation: Savanna Climate is a type of climate has alternate wet and dry seasons similar to monsoon climate but has considerably less annual rainfall.

- Also, there is no distinct rainy season like in monsoon climate.
- It is confined within the tropics and is best developed in Sudan, hence its name the Sudan Climate.

Source: G C Leong

Q.7) The term isotherm is associated with which of the following?

- a) Rainfall
- b) Oceanic depth
- c) Temperature
- d) Mountain heights

ANS: C

Explanation: Isotherm: a line on a map connecting points having the same temperature at a given time or on average over a given period.

- Isobar: A line drawn on a weather map connecting points of equal pressure is called an isobar. The isobars are generated from mean sea level pressure reports and the pressure values are given in millibars.

- An isohyet is also known as isohyetal line, and it is a line on a map which connects points that have the same amounts of precipitation in a given period or for a particular storm.
- The method used in estimating average rainfall across a particular area is known as an isohyetal method.

Source: G C Leong

Q.8) Which of the following clouds are extremely dense and opaque to the rays of the sun?

- a) Nimbus clouds
- b) Cirrus clouds
- c) Cumulus clouds
- d) Stratus clouds

ANS: A

Explanation: Nimbus clouds are black or dark gray. They form at middle levels or very near to the surface of the earth. These are extremely dense and opaque to the rays of the sun. Sometimes, the clouds are so low that they seem to touch the ground. Nimbus clouds are shapeless masses of thick vapour.

Source: NCERT XI Fundamentals of Physical geography

Q.9) Which of the following are refer as the Roaring Forties, Furious Fifties and Shrieking or Stormy Sixties?

- a) Westerlies
- b) Easterlies
- c) Doldrums
- d) Horse latitudes

ANS: A

Explanation: The Roaring Forties take shape as warm air near the equator rises and moves toward the poles.

- Warm air moving pole-ward (on both sides of the equator) is the result of nature trying to reduce the temperature difference between the equator and at the poles created by uneven heating from the sun.
- This process sets up global circulation cells, which are mainly responsible for global-scale wind patterns.
- The air descends back to Earth's surface at about 30 degrees' latitude north and south of the equator. This is known as the high-pressure subtropical ridge, also known as the horse latitudes.
- Here, as the temperature gradient decreases, air is deflected toward the poles by the Earth's rotation, causing strong westerly and prevailing winds at approximately 40 degrees. These winds are the Roaring Forties.
- The Roaring Forties in the Northern Hemisphere don't pack the same punch that they do in the Southern Hemisphere.
- This is because the large land masses of North America, Europe, and Asia obstructing the airstream, whereas, in the southern hemisphere, there is less land to break the wind in South America, Australia, and New Zealand.
- While the Roaring Forties may be fierce, 10 degrees south are even stronger gale-force winds called the Furious Fifties.
- And 10 degrees south of the Furious Fifties lay the Screaming Sixties! We can thank the intrepid sailors of yore for these wildly descriptive terms.

Source: G C Leong

Q.10) “It is called after the types of vegetation, like low growing mosses, lichens and flowering plants. This is the region of permafrost where the sub soil is permanently frozen” – describes which of the following?

- a) Cryosphere climate
- b) Timberline forest climate
- c) Mediterranean climate
- d) Tundra climate

ANS: D

Explanation: The tundra climate (ET) is so called after the types of vegetation, like low growing mosses, lichens and flowering plants.

- This is the region of permafrost where the sub soil is permanently frozen.
- The short growing season and water logging support only low growing plants.
- During summer, the tundra regions have very long duration of day light.

Source: NCERT XI Fundamentals of Physical geography

Landforms formed due to erosion and depositional agents

Q.1) With reference to the landforms formed due to running water, which of the following statements is/are correct?

1. There are no depositional forms associated with streams flowing over steep slopes.
2. The vigorous the river channels in gradient, the greater is the deposition.

Select the correct answer using the codes given below:

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

ANS: D

Explanation: There are two components of running water. One is overland flow on general land surface as a sheet. Another is linear flow as streams and rivers in valleys.

- Most of the erosional landforms made by running water are associated with vigorous and youthful rivers flowing over steep gradients.
- With time, stream channels over steep gradients turn gentler due to continued erosion, and as a consequence, lose their velocity, facilitating active deposition.
- There may be depositional forms associated with streams flowing over steep slopes. But these phenomena will be on a small scale compared to those associated with rivers flowing over medium to gentle slopes.
- The gentler the river channels in gradient or slope, the greater is the deposition.

Source: NCERT – XI Fundamentals of Physical Geography

Q.2) Consider the following statements regarding Peneplain:

1. It is formed due to erosion by rivers and rain.
2. When a peneplain is raised, it becomes a Plateau.

Which of the statements above given is/are correct?

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

ANS: C

Explanation: Peneplain is a region that is almost a plain. It is formed due to erosion by rivers (stream erosion) and rain, that continues until almost all the elevated portions are worn down; the most resistant rocks generally stand above the general level of the land.

When a peneplain is raised, it becomes a Plateau, which is then dissected by the river as they pass through a fresh cycle from youth to old age.

Source: NCERT – XI Fundamentals of Physical Geography

Q.3) Consider the following statements:

1. Large and deep holes at the base of waterfalls are formed due to sheer impact of water and rotations of boulders are called as plunge pools.
2. Over the rocky beds of hill-streams more or less circular depressions form because of stream erosion aided by the abrasion of rock fragments are called as potholes.

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Which of the statements given above is/are correct?

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

ANS: C

Explanation: Over the rocky beds of hill-streams more or less circular depressions called potholes form because of stream erosion aided by the abrasion of rock fragments.

- Once a small and shallow depression forms, pebbles and boulders get collected in those depressions and get rotated by flowing water and consequently the depressions grow in dimensions.
- A series of such depressions eventually join and the stream valley gets deepened.
- At the foot of waterfalls also, large potholes, quite deep and wide, form because of the sheer impact of water and rotation of boulders.
- Such large and deep holes at the base of waterfalls are called plunge pools.

Source: NCERT – XI Fundamentals of Physical Geography

Q.4) Consider the following statements:

1. Point bars are low, linear and parallel ridges of coarse deposits along the banks of rivers, quite often cut into individual mounds.
2. Natural levees are found on the concave side of meanders of large rivers and are sediments deposited in a linear fashion by flowing waters along the bank.

Which of the statements given above is/are correct?

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

ANS: D

Explanation: Natural levees and point bars are some of the important landforms found associated with floodplains.

- Natural levees are found along the banks of large rivers. They are low, linear and parallel ridges of coarse deposits along the banks of rivers, quite often cut into individual mounds.
- Point bars are also known as meander bars. They are found on the concave side of meanders of large rivers and are sediments deposited in a linear fashion by flowing waters along the bank.
- They are almost uniform in profile and in width and contain mixed sizes of sediments.

Source: NCERT – XI Fundamentals of Physical Geography

Q.5) “They hang as icicles of different diameters and normally they are broad at their bases and taper towards the free ends showing up in a variety of forms” – is related to which of the following?

- a) Stalagmites
- b) Uvalas
- c) Stalactites
- d) Sinkhole

ANS: C

Explanation: Stalactites hang as icicles of different diameters. Normally they are broad at their bases and taper towards the free ends showing up in a variety of forms.

Source: NCERT – XI Fundamentals of Physical Geography

Q.6) Which of the following is/are depositional landforms formed by glaciers?

1. Cirque
2. Moraines
3. Eskers

Select the correct answer using the codes given below:

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

ANS: C

Explanation: Cirques are the most common of landforms (erosional) in glaciated mountains. The cirques quite often are found at the heads of glacial valleys.

- The accumulated ice cuts these cirques while moving down the mountain tops.
- They are deep, long and wide troughs or basins with very steep concave to vertically dropping high walls at its head as well as sides.
- A lake of water can be seen quite often within the cirques after the glacier disappears. Such lakes are called cirque or tarn lakes.
- There can be two or more cirques one leading into another down below in a stepped sequence.
- When the glaciers retreated leaving behind their freight of crushed rock and sand (glacial drift), they created characteristic depositional landforms.
- Examples include glacial moraines, eskers, and kames. Drumlins and ribbed moraines are also landforms left behind by retreating glaciers.

Source: NCERT – XI Fundamentals of Physical Geography

Q.7) Which of the following is/are rapid mass movement of rocks or debris?

1. Earthflow
2. Creep
3. Avalanche
4. Landslide

Select the correct answer using the codes given below:

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

ANS: C

Explanation: Mass Movements transfer the mass of rock debris down the slopes under the direct influence of gravity. That means, air, water or ice does not carry debris with them from place to place but on the other hand the debris may carry with it air, water or ice.

- The movements of mass may range from slow to rapid, affecting shallow to deep columns of materials and include creep, flow, slide and fall.
- Creep can occur on moderately steep and soil covered slopes. Movement of materials is extremely slow and imperceptible except through extended observation. Material involved can be soil or rock debris.

- Landslides are relatively rapid and perceptible movements. The materials involved are relatively dry. The size and shape of the detached mass depends on the nature of discontinuities in the rock, the degree of weathering and the steepness of the slope.
- Movement of water saturated clayey or silty earth materials down low-angle terraces or hillsides is known as Earthflow.
- Avalanche is more characteristic of humid regions with or without vegetation cover and occurs in narrow tracks on steep slopes. Debris avalanche is similar to snow avalanche.

Source: NCERT – XI Fundamentals of Physical Geography

Q.8) Which of the following is/are the examples of metamorphic rocks?

1. Granite
2. Marble
3. Slate

Select the correct answer using the codes given below:

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

ANS: D

Explanation: In the process of metamorphism in some rocks grains or minerals get arranged in layers or lines. Such an arrangement of minerals or grains in metamorphic rocks is called foliation or lineation.

- Sometimes minerals or materials of different groups are arranged into alternating thin to thick layers appearing in light and dark shades.
- Such a structure in metamorphic rocks is called banding and rocks displaying banding are called banded rocks.
- Types of metamorphic rocks depend upon original rocks that were subjected to metamorphism.
- Metamorphic rocks are classified into two major groups-foliated rocks and non-foliated rocks.
- Gneissoid, granite, syenite, slate, schist, marble, quartzite etc. are some examples of metamorphic rocks.

Source: NCERT – XI Fundamentals of Physical Geography

Q.9) Which among the following weathering process result in the formation of caves?

- a) Hydration
- b) Carbonation
- c) Oxidation
- d) Solution

ANS: B

Explanation: Carbonation is the reaction of carbonate and bicarbonate minerals and is a common process helping in breaking down of feldspars and carbonate minerals.

- Carbon dioxide from the atmosphere and soil air is absorbed by water, to form carbonic acid that acts as a weak acid.
- Calcium carbonates and magnesium carbonates are dissolved in carbonic acid and are removed in solution without leaving any residue resulting in cave formation.

Source: NCERT – XI Fundamentals of Physical Geography

Q.10) Consider the following statements regarding Mass Movements:

1. Mass movements are aided by gravity and no geomorphic agent like running water, glaciers, wind, waves and currents participate in the process of mass movements.
2. Mass movements do not come under erosion.

Which of the above given statements is/are correct?

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

ANS: C

Explanation: Mass movements transfer the mass of rock debris down the slopes under the direct influence of gravity.

- That means, air, water or ice doesn't carry debris with them from place to place but on the other hand the debris may carry with it air, water or ice.
- The movements of mass may range from slow to rapid, affecting shallow to deep columns of materials and include creep, flow, slide and fall. Gravity exerts its force on all matter, both bedrock and the products of weathering.
- So, weathering is not a pre-requisite for mass movement though it aids mass movements. Mass movements are very active over weathered slopes rather than over un-weathered materials.
- Mass movements are aided by gravity and no geomorphic agent like running water, glaciers, wind, waves and currents participate in the process of mass movements.
- That means mass movements do not come under erosion though there is a shift (aided by gravity) of materials from one place to another.
- Materials over the slopes have their own resistance to disturbing forces and will yield only when force is greater than the shearing resistance of the materials.
- Weak unconsolidated materials, thinly bedded rocks, faults, steeply dipping beds, vertical cliffs or steep slopes, abundant precipitation and torrential rains and scarcity of vegetation etc., favor mass movements.

Source: NCERT – XI Fundamentals of Physical Geography

Introduction: Location, Area and boundaries of India

Q.1) Which of the following statement is NOT correct about Andaman & Nicobar Islands?

- a) Eight Degree Channel separates Little Andaman from South Andaman.
- b) Ten Degree Channel separates Great Andaman group from Nicobar group.
- c) Saddle peak in North Andaman is the highest peak.
- d) Andaman Islands are divided into three main islands i.e. North, Middle and South.

ANS: A

Explanation: The Andaman Islands are divided into three main islands i.e. North, Middle and South. Duncan passage separates Little Andaman from South Andaman.

- The Great Andaman group of islands in the north is separated by the Ten Degree Channel from the Nicobar group in the south. Among the Nicobar Islands, the Great Nicobar is the largest.
- It is the southernmost island and is very close to Sumatra island of Indonesia. The Car Nicobar is the northernmost.
- Some of the islands are fringed with coral reefs. Many of them are covered with thick forests.
- Most of the islands are mountainous. Saddle peak (737 m) in North Andaman is the highest peak.

Source: NCERT – XI India Physical Environment

Q.2) “Jelep-la” pass is located in which of the following state?

- a) Sikkim
- b) Assm
- c) Himachal Pradesh
- d) Arunachal Pradesh

ANS: A

Explanation: Sikkim is a land of dramatic contours. Rugged mountains, deep valleys and dense forests consort with raging rivers, lakes and waterfalls to create a visual feast.

- The state has the steepest rise in altitude over the shortest distance and has within its 7,096 sq. kms the entire climatic range, from tropical to temperate to alpine.
- Located between these towering mountain ranges are passes like Nathu-la, Jelep-la, Cho-la and many others which were at one time important corridors of passage between Sikkim and Tibet.

Source: NCERT – XI India Physical Environment

Q.3) The “Indian Standard Meridian” NOT passes through which of the following States?

- 1. Uttar Pradesh
- 2. Madhya Pradesh
- 3. Chhattisgarh
- 4. Pondicherry
- 5. Tamil Nadu

Select the correct answer using the code given below:

- a) 1, 2, 3 and 4 only

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

ANS: D

Explanation: The Indian Standard Meridian passes through mostly 5 states which are Uttar Pradesh, Madhya Pradesh, Chhattisgarh, Odisha and Andhra Pradesh.

Source: NCERT – XI India Physical Environment

Q.4) Which of the following State (s) of India is/are NOT share (s) border with three countries?

- 1. Nagaland
- 2. Arunachal Pradesh
- 3. West Bengal

Select the correct answer using the codes given below:

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

ANS: A

Explanation: India has a land frontier of 15,106.7 km. The total length of the coastline of India is 7,516.6 km. India shares its border with seven countries namely Afghanistan, Pakistan, China, Bhutan, Nepal, Myanmar, Bangladesh, Maldives and Sri Lanka.

- Arunachal Pradesh shares border with Bhutan, China and Myanmar.
- West Bengal shares border with Bangladesh, Bhutan and Nepal.
- Sikkim shares border with Bhutan, China and Nepal.
- Nagaland is a mountainous state in northeast India, bordering Myanmar.

Source: NCERT – XI India Physical Environment

Q.5) Which of the following pair (s) is/are correctly matched?

- | Pass | : | Significance |
|--------------------|---|--------------------------------------|
| 1. Zoji la (Pass) | : | Connects Srinagar to Leh |
| 2. Shipki La Pass | : | Satluj River flows through this Pass |
| 3. Nathu la (Pass) | : | Chumbi River flows through this Pass |

Select the correct answer using the codes given below:

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

ANS: D

Explanation: Zoji La: Zoji La is a high mountain pass located in the Kargil district of Ladakh.

- The pass links Leh and Srinagar and provides an important link between Union Territories of Ladakh and Kashmir.
- In 2018, the Zojila tunnel project was launched.
- The tunnel is Asia's longest and strategic bi-directional tunnel, which will provide all-weather connectivity between Srinagar, Kargil and Leh.

Banihal Pass: It is in Jammu & Kashmir. The National Highway No.1A that links Srinagar to Jammu goes through it. Satluj River flows through Shipki La (Pass).

PRELIMS MARATHON COMPILATION FOR THE MONTH OF JUNE (FOURTH WEEK), 2021

Nathu La: It is in Sikkim. It gives way to Tibet from Darjeeling and Chumbi Valley. The Chumbi River flows through this pass.

Source: NCERT – XI India Physical Environment and ICSE – X Total Geography

Q.6) Which of the following pair (s) is/are correctly matched?

Peak		hills/Range
1. Anai Mudi	:	Nilgiri hills
2. Doda Beta	:	Anamalai hills
3. Guru Shikhar	:	Aravali range

Select the correct answer using the code given below:

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

ANS: C

Explanation: Anamudi is a mountain located in the Indian state of Kerala.

- It is the highest peak in the Western Ghats and South India, at an elevation of 2,695 metres.
- Its parental hills are Anaimalai hills.
- Doda beta is the highest peak of nilgiri hills while Guru Shikhar is the highest peak of Aravali Range located in Rajasthan.

Source: NCERT – XI India Physical Environment and ICSE – X Total Geography

Q.7) Which of the following river rises north of the tropic of cancer in India?

- a) Krishna River
- b) Godavari River
- c) Pennar River
- d) Dhasan River

ANS: D

Explanation:



Source: Oriental Blackswan Atlas

Q.8) Which of the following factors are affecting the Indian monsoon?

1. The differential heating of the landmass of Asia and the Indian Ocean.
2. The existence of the Himalayan ranges and the Tibetan Plateau.
3. Changes in the equatorial Atlantic Ocean.

Select the correct answer using the code given below:

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

ANS: D

Explanation: The term monsoon has been derived from the Arabic word mausin or from the Malayan word monsin meaning 'season'.

Monsoons are seasonal winds (Rhythmic wind movements - Periodic Winds) which reverse their direction with the change of season.

Factors affecting monsoon in India-

- The differential heating of the landmass of Asia and the Indian Ocean.
- The existence of the Himalayan ranges and the Tibetan Plateau.
- The occurrence of heavy-light snow over the Tibetan Plateau.
- The existence and circulation of the upper air jet stream in the troposphere.
- Changes in the equatorial Atlantic Ocean have been known to have an inverse relationship with the Indian summer monsoon rainfall. This means if there is a cold phase in the Atlantic, it can bring more rainfall to India and vice versa.

Source: NCERT – XI India Physical Environment

Q.9) Port Blair, the capital of Andaman and Nicobar Islands is located on?

- a) Great Nicobar
- b) South Andaman
- c) Little Andaman
- d) Middle Andaman

ANS: B

Explanation: Port Blair is located on South Andaman Island.



Source: Oxford Atlas

Q.10) Three important rivers of the Indian sub-continent have their source near the Mansarovar Lake in the Great Himalayas. Which among the following are the rivers?

- a) Indus, Ganga and Sutlej
- b) Sutlej, Yamuna and Brahmaputra
- c) Brahmaputra, Indus and Sutlej
- d) Sutlej, Jhelum and Yamuna

ANS: C

Explanation: Lake Manasa sarovar is relatively round in shape with the circumference of 88 km (54.7 mi).

- Its depth reaches a maximum depth of 90 m (300 ft) and its surface area is 320 km² (123.6 sq mi).
- It is connected to nearby Lake Rakshastal by the natural Ganga Chhu channel.
- Lake Manasarovar is near the source of the Sutlej, which the easternmost large tributary of the Indus, is nearby are the sources of the Brahmaputra River, the Indus River, and the Ghaghara, an important tributary of the Ganges.

Source: ICSE – X Total Geography

Revision

Q.1) Which among the following is/are the indirect source of information about the interiors of Earth?

1. Seismic Activities
2. Volcanic Eruption
3. Meteors

Select the correct answer using the codes given below:

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

ANS: C

Explanation: The earth's radius is 6,370 km. No one can reach the centre of the earth and make observations or collect samples of the material.

- Most of our knowledge about the interior of the earth is largely based on estimates and inferences. Yet, a part of the information is obtained through direct observations and analysis of materials.
- Volcanic eruption forms another source of obtaining direct information. As and when the molten material (magma) is thrown onto the surface of the earth, during volcanic eruption it becomes available for laboratory analysis. However, it is difficult to ascertain the depth of the source of such magma.
- Indirect Sources: Another source of information is the meteors that at times reach the earth. However, it may be noted that the material that becomes available for analysis from meteors, is not from the interior of the earth.
- The material and the structure observed in the meteors are similar to that of the earth. They are solid bodies developed out of materials same as, or similar to, our planet.
- Hence, this becomes yet another source of information about the interior of the earth.
- The other indirect sources include gravitation, magnetic field, and seismic activity.

Source: NCERT – XI Fundamentals of Physical Geography

Q.2) Consider the following pairs:

- | Discontinuity | : | Layers |
|----------------------------|---|----------------------------------|
| 1. Moho Discontinuity | : | Separates Crust and mantle |
| 2. Gutenberg Discontinuity | : | Separates mantle and core |
| 3. Connardo Discontinuity | : | Separates Felsic and Mefic layer |

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

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

ANS: D

Explanation: The portion of the interior beyond the crust is called the mantle. The mantle extends from Moho's discontinuity to a depth of 2,900 km. The upper portion of the mantle is called asthenosphere.

- Connardo's discontinuity separates upper felsic layer of continent from mafic layer. It is only present within continental crust and not in the oceanic layer.
- While the Gutenberg discontinuity separates the lower mantle from the core. It is present at about 2900 km of depth.

Source: NCERT – XI Fundamentals of Physical Geography

Q.3) Which one of the following is NOT a luminous object?

- a) Sun
- b) Electric Lamp
- c) Candle
- d) Moon

ANS: D

Explanation: Moon is a non-luminous object because as we know that luminous objects emit light on their own while non-luminous objects emit light with the help of luminous objects.

Here sun is a luminous object so moon takes light from the sun and emits light in our surrounding and our environment.

Source: G C Leong

Q.4) Sonoran is a desert located in which of the following Continent?

- a) Antarctica
- b) Europe
- c) Asia
- d) North America

ANS: D

Explanation: Sonoran Desert, also called Desierto de Altar, arid region covering 120,000 square miles (310,800 square km) in southwestern Arizona and southeastern California, U.S., and including much of the Mexican state of Baja California Sur, part of Baja California State, and the western half of the state of Sonora.

Subdivisions of the hot, dry region include the Colorado and Yuma deserts.

Source: G C Leong

Q.5) India has the longest land frontier with which of the following countries?

- a) Nepal
- b) China
- c) Myanmar
- d) Bangladesh

ANS: D

Explanation: India has 15,106.7 Km of land border and a coastline of 7,516.6 Km including island territories. The length of our land borders with neighboring countries is as under:

Name of the country	Length of the border (in Km)
Bangladesh	4,096.7
China	3,488

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Pakistan	3,323
Nepal	1,751
Myanmar	1,643
Bhutan	699
Afghanistan	106
Total	15,106.7

Source: NCERT – XI Fundamentals of Physical Geography

Q.6) India's climate is most affected by which of the following two winds?

- a) North-East monsoon and South-West monsoon
- b) North-West monsoon and South-East monsoon
- c) North-East monsoon and South-East monsoon
- d) North-West monsoon and South-West monsoon

ANS: A

Explanation: The climate of India is described as a monsoon type. This type of climate is found in south and south-east Asia. However, there are variations in climatic conditions in the country itself. The coastal regions of India show the least amount of difference between the temperatures of night and day. In the interior regions, the difference in temperatures of day and night is huge.

The climate of India depends greatly on monsoon winds. The monsoons usually happen due to the differential heating of land and water.

- The Advancing Monsoon (Rainy Season) or South west Monsoon: By early June, the trade winds of the southern winds bring abundant moisture to the country. The windward side of the Western Ghats receives very heavy rainfall, more than 250 cm. The monsoon is known for its uncertainties. While it causes heavy floods in one part, it may be responsible for droughts in the other. It is also irregular in arrival and retreat.
- Retreating Monsoons (Transition Season) or North-east Monsoon: During October-November, the monsoons become weaker. The sun moves towards the south. By the beginning of October, monsoon withdraws from the Northern Plains. There is a transition from hot rainy season to dry winter season.

Source: NCERT – XI India Physical Environment

Q.7) Consider the following statements:

1. Sikkim is the only state in India to share border with only one state.
2. Chhattisgarh has maximum number of neighboring states.

Which of the statements given above is/are correct?

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

ANS: D

Explanation: Sikkim and Meghalaya are the only two states in India to share border with just one state. Sikkim shares border with West Bengal while Meghalaya shares border with Assam.

- Uttar Pradesh is the only state which has maximum number of neighboring state. Uttar Pradesh shares border with 9 states, which are Uttarakhand, HP, Delhi, Haryana, Rajasthan, MP, Chhattisgarh, Bihar and Jharkhand.

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- The second highest number of neighboring states is 7. Both Assam and Chhattisgarh shares border with 7 other states.

Source: NCERT – XI India Physical Environment

Q.8) On which of the following hill ranges “Guru Shikhar” peak is situated?

- a) Aravali Hills
- b) Garo Hills
- c) Mahadeo hills
- d) Satmala Hill

ANS: A

Explanation: Guru Shikhar is located at a height of 1772 meters above sea level. This mountain peak is located at a distance of 15 km from Mount Abu in the Aravalli range. It is the highest peak in the Aravali Range.

Source: NCERT – XI India Physical Environment

Q.9) Which of the following statements is/are correct about Konkan coast?

- 1. It extends from Mumbai to South Karnataka.
- 2. It has high annual range of temperature.
- 3. It receives rainfall by the Arabian Sea branch of Southwest monsoon.

Select the correct answer using the codes given below:

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

ANS: D

Explanation: India's climate is controlled by a number of factors which can be broadly divided into two groups — factors related to location and relief, and factors related to air pressure and winds. With a long coastline, large coastal areas have an equable climate.

- Areas in the interior of India are far away from the moderating influence of the sea. Such areas have extremes of climate.
- That is why the people of Mumbai and the Konkan coast have hardly any idea of extremes of temperature and the seasonal rhythm of weather.
- On the other hand, the seasonal contrasts in weather at places in the interior of the country such as Delhi, Kanpur and Amritsar affect the entire sphere of life.

Source: NCERT – XI India Physical Environment

Q.10) Consider the following statements:

- 1. India is the 8th largest country in the world.
- 2. The tropic of Capricorn divides country into two equal parts.

Which of the statements given above is/are incorrect?

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

ANS: C

Explanation: India is a vast country. Lying entirely in the Northern hemisphere the main land extends between latitudes 8°4'N and 37°6'N and longitudes 68°7'E and 97°25'E.

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- The Tropic of Cancer ($23^{\circ} 30'N$) divides the country into almost two equal parts. To the southeast and southwest of the mainland, lie the Andaman and Nicobar Islands and the Lakshadweep islands in Bay of Bengal and Arabian Sea respectively.
- The land mass of India has an area of 3.28 million square km. India's total area accounts for about 2.4 per cent of the total geographical area of the world. It is clear that India is the seventh largest country of the world.
- India has a land boundary of about 15,200 km and the total length of the coast line of the mainland including Andaman and Nicobar and Lakshadweep is 7,516.6 km.

Source: NCERT – XI India Physical Environment