

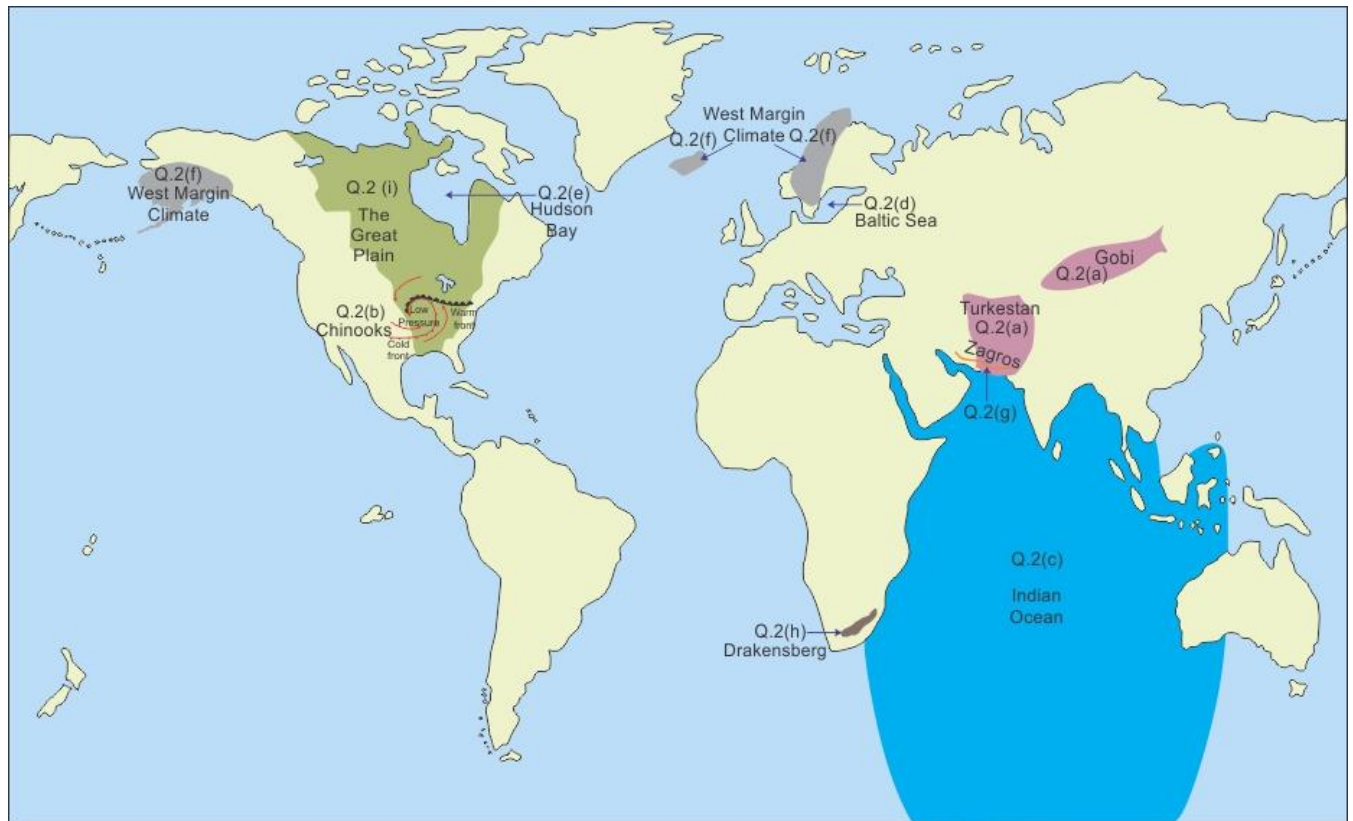
ICSE Board
Class IX Geography
Sample Paper – 1 Solution

PART – I (30 Marks)

Answer 1

- a) The Moon completes one revolution of the Earth in about 27 days, and it completes one rotation in about 29 days. Since the time taken by the Moon to complete one revolution and one rotation is approximately the same, we are able to see only one side of the Moon from the Earth.
- b) Latitudes are parallel lines running horizontally from east to west on a globe. Longitudes are the vertical lines that run from north to south on a globe.
- c) Magma chamber is a large pool of molten liquid which is deposited under the surface of the earth beneath a volcano.
- d) Three seasons of the Tropical Monsoon regions are summers, winters and monsoon.
- e) Pollutants are substances which contaminate the natural environment and adversely affect plant and animal life. For example, plastic is a pollutant which degrades the natural environment i.e. land, rivers and oceans, etc.
- f) Yes, I agree that global warming may lead to droughts. This is true particularly for dry regions. Due to the excessive heat, water will evaporate quickly from the land. Similarly, the rate of transpiration, i.e. loss of water from the leaves of the plants, will also increase. Soil in the dry regions with scanty vegetation will lose moisture quickly resulting in droughts.
- g) The stratosphere is free from water vapour and dust particles. The absence of clouds and any other turbulence in the air makes it a perfect layer for jet aircrafts to fly in.
- h) The lithosphere is the outer most crust of the Earth. It is the thinnest layer of the Earth. It consists mainly of rocks which contain large amounts of silicates, feldspar, mica etc. Lithosphere is mainly divided into two layers- ocean floors and continents.
- i) At times, when the crustal rocks are subjected to horizontal compressional pressure, they do not get folded. Instead they develop fractures or cracks along the line of weakness. These lines of fracture are known as faults. The movement of part of the earth's crust along the line of the fault is known as faulting. Block mountains are formed due to faulting.
- j) Distribution of land on the Earth - 29% of the total surface of the Earth.
Distribution of water on the Earth - 71% of the total surface of the Earth.

Answer 2



PART – II (50 Marks)**Answer 3**

a)

- i. The three types of rocks are igneous rocks, sedimentary rocks and the metamorphic rocks.
- ii. Igneous rocks are formed due to the cooling, solidification and crystallisation of magma either on the surface or in the interiors of the Earth. Sediments are rock particles that are broken loose by the agents of gradation like wind, water, glaciers etc. These sediments of rocks get deposited and form the sedimentary rocks.

When existing rocks are subjected to high temperature and pressure, metamorphic rocks are formed. For example, limestone is altered to form marble rock, shale is metamorphosed into slate.

b)

- i. Plutonic rocks are igneous rocks that are formed below the surface of the Earth. They are coarse grained rocks which are compact and glassy in appearance.
 - ii. Granite is an example of an igneous plutonic rock.
- c) The process by which the loose sediments are compacted into a rock is called lithification. Sedimentary rocks are formed due to the process of lithification.
- d) Two processes are responsible for the formation of sedimentary rocks. They are:
- Compaction:** When soft and loose sediments are squeezed by the overlying layers of rocks and the rocks lying beneath them, they become hardened. For example sand stone is formed after compacting of sand.
- Cementation:** The binding together of compacted sediments by natural materials like silica and iron is called cementation.

Answer 4

a)

- i. The Richer scale is used for measuring the intensity of an earthquake.
- ii. It measures the intensity of an earthquake on the scale of 1 to 9. While an earthquake measuring 1 on a Richter Scale is hardly felt, an earthquake measuring 7 or more on the Richter Scale may cause damage to life and property.

b)

Richter scale	Mercalli scale
It was introduced by the American seismologist, Charles Francis Richter.	It was introduced by the Italian seismologist Giuseppe Mercalli.
It measures the magnitude of an earthquake on a scale measuring from 1 to 9.	It measures earthquake on a scale measuring from 1 to 12.
This scale is commonly used today for measuring earthquakes.	This scale is not very common.

c)

- i. A tsunami is a giant sea wave which is caused mainly due to earthquakes occurring under the sea. Tsunamis may be as high as 15m.
- ii. When an earthquake or volcanic activity occurs, a large amount of water could get displaced. The displaced water then can transform into waves. When these waves approach the shallow waters in coastal areas, they become high and crash onto the shore. Tsunamis can cause widespread destruction of life and property.

d)

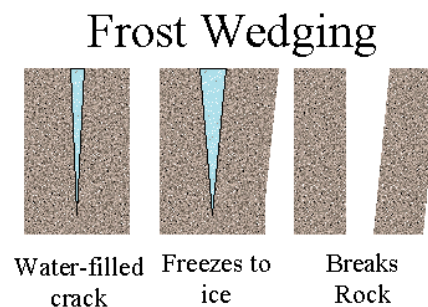
- i. India is located in the Mid Mountain Belt.
- ii. The regions in India which are highly prone to earthquakes are - the state of Kashmir, the foothills of the Himalayas, the North eastern region and the Rann of Kutch. Earthquakes frequently take place in the foothills of the Himalayas and the Ganga Brahmaputra valley as these are regions where the tectonic plates meet. The state of Maharashtra is also prone to earthquakes.

Answer 5

- a)
- The spinning of the Earth on its axis from west to east is called rotation.
 - Two characteristic features of the rotation of the Earth are:
 - The Earth takes 23 hours, 56 minutes and 4.09 seconds to complete one rotation.
 - The speed of the rotation of the Earth decreases towards the poles.
- b) Due to the earth's rotation, the direction of the winds and ocean currents get changed. As the Earth rotates, the winds and the ocean currents are deflected towards the right in the Northern Hemisphere and towards the left in the Southern Hemisphere. This is known as the Coriolis Effect.
- c)
- When the days and nights are of equal duration, it is known as an equinox.
 - Equinox occurs twice in a year. On September 23 and March 21, the lengths of days and nights are equal.
- d)
- The Earth takes $365 \frac{1}{4}$ days to complete one revolution around the Sun. To keep the equation simple, we take 365 days in a year. The rest one fourth of the day or six hours are added up to one day or 24 hours over the span of four years to the month of February. Thus, the month of February has 29 days in a leap year which comes once in a year.
 - During the summer solstices, the North Pole is inclined towards the Sun. Therefore, the duration of the day increases from 12 hours at the Equator to 24 hours at the Arctic Circle and the regions beyond it. Norway lies beyond the Arctic Circle. Thus the Sun neither rises nor sets for few months in a year. Therefore it is known as the land of the midnight Sun. The Sun here is visible at a very low height just above the horizon. Hammerfest in Norway experiences continuous sunlight from May 13 to July 29.
 - New Zealand lies in the Southern Hemisphere. On December 22, the Southern Hemisphere is tilted towards the Sun. The Sun shines directly over the Tropic of Capricorn. The places in the Southern Hemisphere thus experience the summer season. Therefore, the 25th of December in New Zealand may be one of the hottest days of the year.

Answer 6

- a)
- Denudation is a long term process which involves the wear and tear of the earth's surface. The landforms are lowered due to denudation.
 - The processes involved in denudation are weathering, mass movements, transportation and erosion.
- b) In regions of dry climate, the cracks in the rocks get filled with water. During the night, the water freezes and expands. When this process is repeated several times, the rock breaks. This is known as the process of frost action.



- c)
- When minerals present in rocks decay or get changed by water, carbon dioxide or by different organic acids, chemical weathering takes place.
 - Rocks decompose due to chemical weathering. This occurs due to chemical reactions that take place in rocks when organic acids come into contact with the surface of rocks.
- d) Three chief characteristics of weathering are:
- Weathering is the wearing away, or the disintegration of solid rocks.
 - This process includes the breaking down of rocks from the surface of the earth.
 - It makes rocks break into finer particles, which are then transported by the agents of gradation like wind and water.

Answer 7

- a) The Dead Sea has the maximum salinity of 240 per thousand. It has a high content of salt because it lies in the tropical region which is hot and consequently the rate of evaporation is high.
- b)
 - i. Tides are the rhythmic rise and fall of ocean water twice in about 24 hours.
 - ii. Tides are caused due to the gravitational pull of the Moon and the Sun.
- c) The three factors influencing the ocean currents are:
 - i. **The Rotation of the Earth:** The earth rotates from west to east. The speed of the rotation of the earth is maximum at the equator. All the moving bodies move in a clockwise direction in the Northern Hemisphere and anti clockwise in the Southern Hemisphere. This is also known as the Coriolis Effect.
 - ii. **The Planetary Winds:** Winds affect the ocean currents. The trade winds blow between the Equator and the Tropics. These winds thus move the equatorial water towards the Poles. For example, the South East Trade Winds drift the Equatorial Current to the eastern coast of Australia as the warm East Australian Current.
 - iii. **Landforms:** A landform may influence the ocean currents. For example, the shape of various landmasses may obstruct the flow of water and influence its movement. For example, the South Equatorial Current gets deflected towards the Northern Hemisphere.
- d)
 - i. **The Labrador Current:** It is a cold current. In early summer, the current brings down ice bergs from the glaciers of Greenland into the trans-Atlantic shipping lanes. It meets the warm Gulf Stream at Newfoundland which creates fog. The mixing of these two currents creates one of the richest fishing grounds in the world.
 - ii. **The Kuro Current:** The warm waters of the Kuro current keeps the coast of Alaska ice free even during the winter.

Answer 8

- a)
- Absolute humidity is the actual amount of water vapour present in the given volume of air at a given temperature.
 - Absolute humidity is expressed in terms of grams per cubic meter (grams of water vapour present in per cubic meter of air).
- b) The two conditions in which air can become saturated are:
- With a decrease in temperature the capacity of air to hold water decreases and the air becomes saturated.
 - If a lot of water vapour is already present in the atmosphere, the air becomes saturated.
- c) The factors that determine the amount of rainfall are:
- Direction of winds:** Winds blowing from the oceans to land bring in more rainfall than the winds that blow from lands.
 - Distance from Sea:** Coastal areas experience more rainfall than the places located in the interiors of the continents. This is because the oceans are the source of water vapour.
 - Mountains:** When mountains or hills lie in the path of moisture bearing winds, the warm air is forced upwards. Subsequently, it starts cooling, forms into clouds and gives rainfall to the windward side. The leeward side of the mountains, however, does not receive rainfall and mostly remain dry.
- d) The amount of rainfall changes gradually from season to season.
- Regions receiving rainfall throughout the year:** The places located in the western margins of the continents in mid latitudes like Western Europe receive rainfall throughout the year.
 - Rainfall during summer:** In the sub tropical regions, convectional rainfall is limited to the summer season only.
 - Rainfall in winter:** Countries located in the Mediterranean regions like France, Albania, Italy etc. receive rainfall during winter.

Answer 9

- a) We can reduce pollution by changing the raw materials in the following ways:
 - i. Fuels with low sulphur content and low harmful emissions should be used instead of fuels that have high sulphur content.
 - ii. Catalytic converters which go a long way in controlling the emission of hydrocarbons and carbon monoxide should be used.
 - iii. Instead of using petrol and diesel in vehicles, Compressed Natural Gas or CNG should be used.
- b) Fuels that are substitutes for coal, petroleum, fire wood etc., and are environment friendly, are known as alternative fuels. They are also renewable sources of energy. For example wind energy, solar energy etc.
- c) In electric power plants, filters are used for separating particulate matter from gases. When smoke passes through bags made up of cloth, wool or cellulose, the particulate matter is trapped in these filters. It is then filtered out.
- d) No, open dumping, is not a suitable way of managing wastes. In open dumping, wastes are dumped in open spaces located far away from the limits of the city. The dumping of different types of wastes make such dumping grounds the breeding ground of mosquitoes, flies etc. Burning of these wastes also pollutes the air. The situation can become worse during the rains. Rainwater may carry these wastes to nearby lakes, rivers or ponds and pollute them.

Answer 10

- a) Pollutants that are not emitted directly, but are formed in the atmosphere due to the chemical reactions between the primary pollutants and the constituents of atmosphere are known as secondary pollutants. For example, ozone is formed when hydrocarbons and nitrogen oxide react with each other in the presence of sunlight.
- b) Biomedical wastes are those wastes which are disposed off by hospitals, medical laboratories and health care centres. These wastes may be in the form of solids and liquids. These are hazardous and infectious in nature.
- c) It is harmful to dispose off household wastes into water bodies because many detergents contain phosphates. When these phosphates enter water bodies, they lead to the rapid growth of algae. The multiplication of aquatic weeds in water bodies hinders fishing, navigation and irrigation.
- d)
 - i. Thermal pollution can be defined as the rise in the temperature of water bodies largely due human activities.
 - ii. The thermal power plants use water as a cooling agent in their plants. They are located nearby the rivers. When these plants release the recycled hot water into the rivers, temperature of water rises resulting in thermal pollution.