

ICSE Solved Paper-2020

Class-IX

GEOGRAPHY

H.C.G.- Paper -2

(Two Hours)

Answers to this Paper must be written on the paper provided separately.

You will **not** be allowed to write during the first 15 minutes.

This time is to be spent in reading the Question Paper.

The time given at the head of this Paper is the time allowed for writing the answers.

Attempt **seven** questions in all.

Part I is compulsory. All questions from **Part I** are to be attempted.

A total of **five** questions are to be attempted from **Part II**.

The Intended marks for questions or parts of questions are given in brackets [].

Note:

- (i) In all Map Work, make wise use of arrows to avoid overcrowding of the map.
- (ii) The Map given at the end of this question paper must be detached, and after marking, must be fastened to your answer booklet.
- (iii) All sub-sections of the questions attempted must be answered in the correct serial order.
- (iv) All working including rough work should be done on the same answer sheet which is used to answer the rest of the paper.

PART I

(30 Marks)

Attempt all questions from this Part

Question 1

Answer the following questions briefly:

- (a) What is a Great Circle? Name a latitude which is a Great Circle. [2]
- (b) What do you understand by the Standard Meridian? [2]
- (c) What is the composition of the Earth's Crust? [2]
- (d) What conditions favour life on earth? [2]
- (e) Why it is practical to follow standard time rather than the local time? [2]
- (f) (i) Name a feature which is formed as a result of deposition by wind in desert area. [2]
(ii) Name a cold ocean current which affects fishing industry of Japan.
- (g) What is a time zone? How many time zones are there in the world? [2]
- (h) Which pressure belt is known as 'horse latitude'? Why? [2]
- (i) Mention any two steps that an individual can take to reduce noise pollution. [2]
- (j) To which Natural regions of the world are the following associated? [2]
 - (i) Conical-shaped soft wood trees.
 - (ii) 4 o'clock rains.

Question 2

On the outline World map provided:

- (a) Shade and label the *Black Sea*. [1]
- (b) Shade and label the *Hudson Bay*. [1]
- (c) Mark and label the mountain range *Drakensberg*. [1]
- (d) Mark and label the mountain range *Andes*. [1]
- (e) Shade and label the *Mongolian Plateau*. [1]
- (f) Shade and label a region with *Mediterranean type of climate*. [1]
- (g) Mark and label river *Indus*. [1]
- (h) Mark and label the river *Colorado*. [1]

- (i) Mark and label the river *Euphrates*. [1]
 (j) Shade and label the Tropical desert in *Australia*. [1]

PART- II

(50 Marks)

Attempt *any five* questions from *this Part***Question 3**

- (a) (i) What is a latitude? [2]
 (ii) Name the latitudes which demarcate northern and southern limit of the torrid zone.
 (b) Calculate the time of a place located at 30°E longitude, when it is 10 p.m. at 30° W longitude. [2]
 (c) Draw a neat, well labelled diagram to show Winter Solstice. [3]
 (d) (i) Mention two effects of the Earth's revolution. [3]
 (ii) How much time does the earth take to make one revolution?

Question 4

- (a) (i) What is the composition of the core of the earth? [2]
 (ii) Why does It occur in a semi molten state?
 (b) (i) How are fold mountains formed? [2]
 (ii) Give an example of a young fold mountain.
 (c) (i) What are Fossils? In which type of rocks do we find fossils? [3]
 (ii) What do you understand by 'ROCK CYCLE'?
 (d) (i) How is metamorphic rock formed? [3]
 (ii) Classify the following rocks into igneous, sedimentary and metamorphic rocks:
 1. Granite
 2. Limestone
 3. Basalt
 4. Marble.

Question 5

- (a) Briefly explain the meaning of the following: [2]
 (i) Weathering
 (ii) Denudation
 (b) Explain the following: [2]
 (i) Epicentre
 (ii) Richter scale
 (c) Give a reason for each of the following: [3]
 (i) Exfoliation is common in deserts.
 (ii) V-shaped valleys are formed by rivers.
 (iii) Limestone regions have prominent examples of chemical weathering.
 (d) (i) Draw a labelled diagram of the *structure of a volcano*. [3]
 (ii) State any two positive effects of volcanoes.

Question 6

- (a) (i) What is the importance of hydrosphere? [2]
 (ii) What percentage of the Earth is covered by the Hydrosphere?
 (b) Mention two factors which affect the pattern of circulation of ocean currents. [2]
 (c) Give a reason for each of the following: [3]
 (i) The waters of the *Oyashio current* form one of the richest fishing grounds in the world.
 (ii) The coast of Norway remains *ice free during winter*.
 (iii) *Warm ocean currents* create a milder climate.
 (d) Draw a well labelled diagram of a *spring tide*. [3]

Question 7

- (a) Write the names of the four *layers of the atmosphere*. [2]
 (b) (i) In which layer of the atmosphere do we find *ozone*? [2]
 (ii) Why is the *Ozone layer* very significant in the atmosphere?
 (c) (i) What is *Global Warming*? [3]
 (ii) Mention any two causes of Global Warming.

- (d) (i) Name the two most important gases present in the atmosphere. [3]
Mention the percentage of both these gases named by you.
(ii) Why is the height of tropopause over the Equator more than over the poles?

Question 8

- (a) (i) Mention two factors that affect atmospheric pressure. [2]
(ii) Give one way in which *Monsoon* is similar to and one way in which it is different from *Land and Sea breezes*? [2]
(b) Give a reason for each of the following: [2]
(i) *Trade winds* move from South east in *Southern hemisphere*.
(ii) Chinook is popularly called *snow eater*.
(c) (i) Name the *four main pressure belts* of the world. [3]
(ii) What is a *front*?
(d) (i) Name two types of variable winds. [3]
(ii) Why are they known as variable winds?
(iii) What is the importance of Jet streams in the climate of India?

Question 9

- (a) Differentiate between *Fog* and *Mist*. [2]
(b) What is *condensation*? Name two forms of *condensation*. [2]
(c) (i) Name three different *types of rainfall*. Which is most common in the *Equatorial* region? [3]
(ii) Why do polar regions receive very low rainfall?
(d) Draw a fully labelled diagram showing the occurrence of rainfall caused by a mountain barrier. [3]

Question 10

- (a) What do you understand by 'SMOG'? Why is it dangerous? [2]
(b) Give a reason for each of the following: [2]
(i) Vehicles are the main source of *air pollution*.
(ii) The use of *CFCs* is the main cause of the depletion of the *ozone layer*.
(c) (i) What are the sources of *radioactive pollution*? [3]
(ii) How does radioactive pollution harm the environment?
(d) (i) Mention any two processes utilise by organic farming. [3]
(ii) Give two points why organic farming is important.

Question 11

- (a) Mention two features of the natural vegetation found in the Equatorial region. [2]
(b) Mention any two ways by which the natural vegetation in tropical deserts adapt to the arid conditions. [2]
(c) In which of the natural regions of the world would the following be found: [3]
(i) Pine trees.
(ii) Tall grass.
(iii) Olive trees.
(d) (i) What is the impact of the natural vegetation of the Taiga region on the occupation of the people living in that region? [3]
(ii) Give a reason as to why the Savanna grasslands are found in Africa.
(iii) What type of climate is found In the Tundra region?

ANSWERS

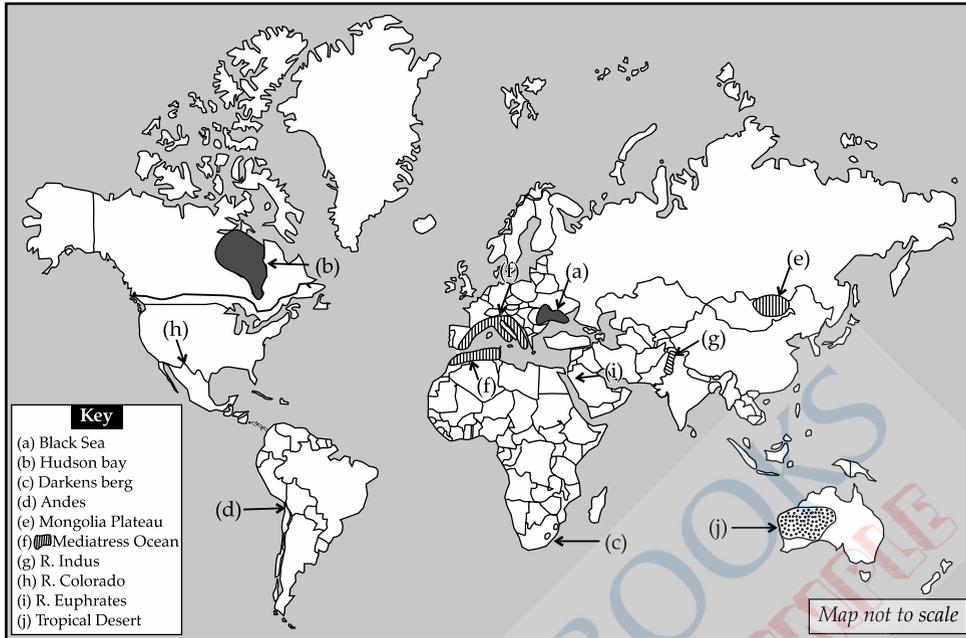
PART I

Question 1

- (a) A Great circle is one which divides a sphere that is the Earth into halves. Latitude which is a great circle is the equator.
- (b) Standard Meridian is the meridian (longitude) which is used to describe time of a country, it should be the same for the whole country and all the places in a country should follow this same time. The standard meridian of India is 82.5° E and it passes through Mirzapur in Uttar Pradesh.
- (c) The Earth crust or the lithosphere is composed of rock. It can be sub-divided into two distinct parts according to its composition.
1. **SIAL** – The topmost layer consisting of granite rock, is made up of silicate and aluminum and is a lighter layer.
 2. **SIMA** – This is a denser layer below the SIAL, consisting mainly of silicate of magnesium, iron and other denser metals.
- (d) The condition which favor life on earth are as follows:
- Lying at an optimum distance from the Sun, the Earth is neither too hot nor too cold, with an average temperature on the sunlight side being 17° C.
 - Presence of an atmosphere containing life supporting gases such as oxygen (21%) and nitrogen (about 78%).
 - Presence of abounding amount of water
 - Presence of the lithosphere which provides the valuable soil layer which sustains plant life.
- (e) As the local time varies from place to place, it would create a lot of confusion if each place were to follow its own local time. Thus, in order to avoid such confusion, it is essential to follow a uniform time or the standard time throughout the country, which is based on the central meridian or the standard meridian of that country.
- (f) (i) Sand dunes
(ii) Oya Shio
- (g) A **Time Zone** is a region of the globe that observes a uniform standard time for legal, social and commercial purposes. Each time zone covers 15° of longitude. There are 24 time zones in the world.
- (h) The sub – Tropical High Pressure Belt (30° to 35° N and S) is known as the “Horse Latitudes”.
The explanation for this name is based on the experience of sailors crossing the Atlantic Ocean from Europe to the West Indies. In olden days, boats used to carry horses along with passengers and other goods. When the boats and ships reached this pressure belt area, they would not move due to the calm and still condition as well as the weight of the cargo. So the captains of the ships ordered the horses and other cargo to be thrown overboard, to reduce the load and proceed on their voyage.
- (i) The steps that can be taken to reduce noise pollution are :-
- We should follow the “limits of Noise level” when using loudspeakers for outdoor parties as well as political or public announcements.
 - We can refrain from using the vehicle horns unnecessarily when waiting for the traffic signal to turn green or even at other times.
 - Use earplugs to bring down loud noise to a manageable level.
 - Make “No Horn” zones especially near hospitals and schools.
- (j) (i) Taiga Region (coniferous Forest / cold temperate or Siberian region).
(ii) Equatorial region.

(Any two)

Question 2

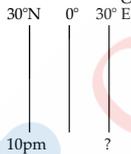


PART II

Question 3

- (a) (i) Latitude of a place may be defined as the angular distance measured from the center of the Earth, in degrees, marks or south of the Equator.
- (ii) The tropic of cancer ($23\frac{1}{2}^{\circ}$ N) is the northern limit and tropic of Capricorn is the southern limit.
- (b) Given that the Earth takes 4 minutes to cover 1° longitude.

Difference in the longitude between 30° E and 30° W = 60°



\therefore Difference in hours is = 60×4

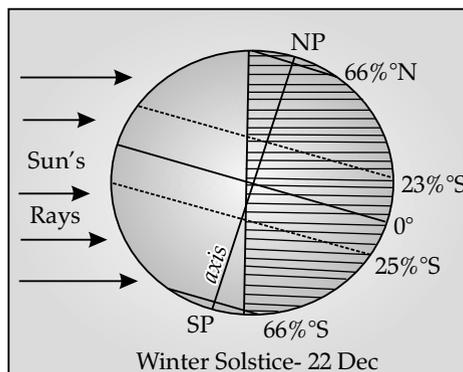
= 240 minutes or 4 hours

Difference in hours should be added as 10° E longitude lies to the east.

\therefore Local time at 10° E = 10 pm Or 22 hours

= 22 hrs + 4 hrs = 26 hours or 2 am next day.

(c)



- (d) (i) **The two effects are:**
- It causes variations in the lengths of day and night which leads to the formation of different seasons in the year.
 - It causes a variation in the altitude of the Midday sun.
- (ii) The Earth takes 365 days and 6 hours to make one revolution around the sun.

Question 4

- (a) (i) The core of the Earth comprises of abundant amounts of the nickel and iron.
- (ii) The outer core is in a molten state due to the very high temperature. However, the inner core is in a solid state due to the immense pressure from the overlying layers
- (b) (i) It is believed the fold mountains have been formed by the convergence of two continental plates. The crust in the collision zone bucked or folded upwards. Folding, is an outcome of forces of compression, horizontally, from opposite direction towards a common centre, giving rise to a chain of “young fold mountains”.
- (ii) The Himalayas, the Andes, the Alps **(Any one)**
- (c) (i) Fossils are organic remains or the skeletal impressions of plants and animals which get preserved between the strata of sedimentary rocks. We find fossils in sedimentary rocks.
- (ii) The whole process of change from one type of rock to another is known as the rock cycle. Igneous rocks were the first or primary rocks to be formed on the Earth due to cooling and solidification of magma or lava. In time, the igneous rocks for denuded and the sediments were deposited in low – lying areas. The sediments compacted and hardened to form **sedimentary rocks**. Both igneous and sedimentary rocks, got altered, under immense heat and pressure to form **Anamorphic rocks**. Again, metamorphic rocks get denuded to form sedimentary rocks or may even melt to form magma which solidify to form igneous rocks. This transformation of rock from one form to another is known as the rock cycle.
- (d) (i) When pre-existing rocks either igneous or sedimentary, alter or change to form a completely new rock with physical as well as chemical changes, they are known as metamorphic rocks. Such a “change of form” or metamorphism occurs when rocks are subjected to high temperature, pressure or both.

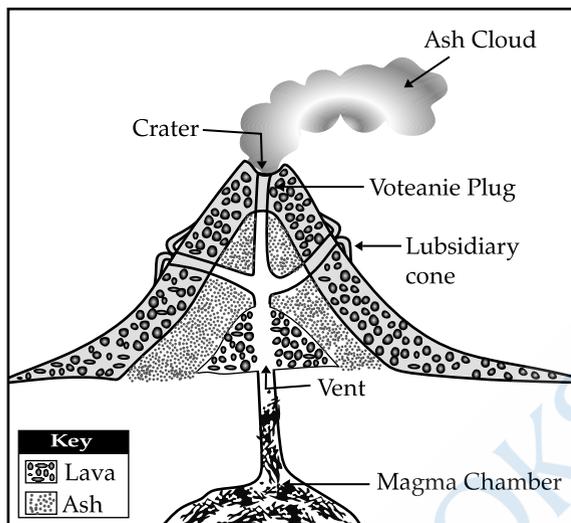
(ii)

Igneous	Sedimentary	Metamorphic
➤ Granite	➤ Limestone	➤ Marble
➤ Basalt		

Question 5

- (a) (i) Weathering is wearing away or gradual disintegration, decomposition or decay of rocks, in situ, on the surface of the Earth due to influence of atmospheric agents such as temperature, humidity changes, moisture and frost.
- (ii) The word “denude” means “laying bare” of rocks by nature agents such as running water, wind, glaciers and waves. It is a process of breaking up and removal of the rocks from the surface of the Earth, through erosion and weathering, resulting in the reduction or elevation of land surface.
- (b) (i) The point on the Earth’s surface vertically above the seismic focus, which is the point of origin of an earthquake beneath the surface, is called the “epicenter”.
- (ii) The Richter Scale is a numerical scale ranging between 0 to 9, to measure the intensity of earthquake waves or the energy released at the focus of an earthquake. It was invented by an American seismologist, Charles. F. Richter in 1935.
- (c) (i) “Exfoliation” means peeling off the layers. In desert region there is a high diurnal range of temperature. So during the day, the thin surface layer of rocks which contain homogeneous minerals, absorb heat and expand, while during night this surface layer cools and contracts. This continuous alternate expansion and contraction of the minerals in the rocks leads to their peeling off, in layers, or exfoliation.
- (ii) In the upper courses of a river, due to the steep gradient, the velocity of the river is very high. The main function of the river is erosion, particularly, vertical corrosion or down – cutting. This leads to the formation of a narrow V-shaped valley.
- (iii) Rainwater contains carbon dioxide in solution which it absorbs from the atmosphere. When this rain water falls on limestone rocks, the calcium carbonate present in the rocks absorbs the carbon – dioxide from the rainwater and turns into calcium bicarbonate, which is more soluble and is removed as the water flows on the rocks or reefs below. Thus, the surface of the limestone rock regions have narrow grooves called “grikes” and rounded or flat topped ridges called “clints”.

(d) (i) Structure of a volcanic Core.



(ii) Two positive effects of volcanoes are :

- Volcanic eruptions deposit lava and ash, which disintegrate to form fertile volcanic soil, good for agriculture
- Tourists are attracted to sites of volcanoes, thus boosting the economy for that region. For example, Mt Etna in Italy, is a major tourist attraction.

Question 6

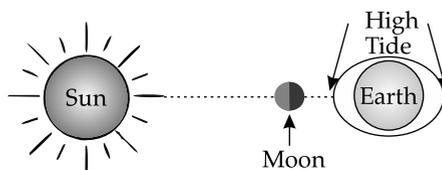
- (a) (i) The water bodies on Earth consisting of oceans, lakes, rivers, underground water and water vapour in the atmosphere are collectively referred to as "hydrosphere". Its importance is that it is one of the basic needs of humans, habitual for many organism like aquatic plants and animals and regulates temperature of the environment.
- (ii) 71% of the Earth is covered by the Hydrosphere.

(b) The factors are :

- **Prevailing or planetary winds:** these winds push the currents onwards. Energy is transferred from wind to water by the frictional drag of the winds blowing over the water surface, pulling it along its own direction.
- **Variation in sea water temperature:** Due to differences in temperature between the Equator and the poles, the warm, light Equatorial waters move slowly along the surface towards the poles. In turn, the cold, dense polar waters move towards the equator along the bottom of the ocean.
- **Coriolis force :** Due to Coriolis force which is generated by the rotation of the Earth, all all ocean currents are deflected towards the right in the Northern hemisphere and towards the left of their course, in the southern Hemisphere. (Any two)

- (c) (i) The Oya Shio current is a cold current that flows southwards from the Sering Strait and meets the warm Kuroshio current of the coast of Hokkaido. The meeting of these cold and warm currents causes the growth of plankton, giving rise to the greatest fishing grounds in the world. Added to this, it contains high amount of nutrients.
- (ii) The Gulf stream, a warm ocean current flows along the east coast of North America. At around 35°N, it is deflected eastward due to the rotation of the earth and the Westerlies. It flows across the N. Atlantic Ocean and reaches the North western coast of Europe as the North Atlantic Drift, carrying the warm equatorial waters. This warm current keeps the cost of Norway ice free, even during winter.
- (iii) Warm oceans currents raise the temperature of the air above them and thus make the climate milder, when they flow along cold water regions. Thus, the surrounding landmasses have milder temperatures, which would otherwise, have been colder.

(d) Diagram of Spring Tide



Question 7

- (a) The names of the layers of the atmosphere are:
- Troposphere
 - Stratosphere/Mesosphere
 - Ionosphere/Thermosphere
 - Exosphere.
- (b) (i) Stratosphere
(ii) The zone layer absorbs the ultraviolet radiation from the Sun, thus protecting the Earth from the harmful ultraviolet rays of the Sun.
- (c) (i) The unusual rise of global temperatures due to release of increased amounts of "green house gases", such as CO_2 , methane and chlorofluorocarbons, as a consequence of careless human activities, is known as Global warming.
(ii) Large scale deforestation, desertification, rockless mining activities and technological advancements have all led to such a situation.
- (d) (i) Nitrogen – 78%, Oxygen -21% and Carbon dioxide – 0.02%.
(ii) The equatorial belt is a region of uniformly high temperature throughout the year. As a result, the air over there is heated, which expands and rises leading to convection currents. They reach higher levels, thus spreading the troposphere vertically higher. Consequently, the tropopause too, reaches a greater height than over the Poles. At the poles, the air cold and dense and stays closer to the ground level.

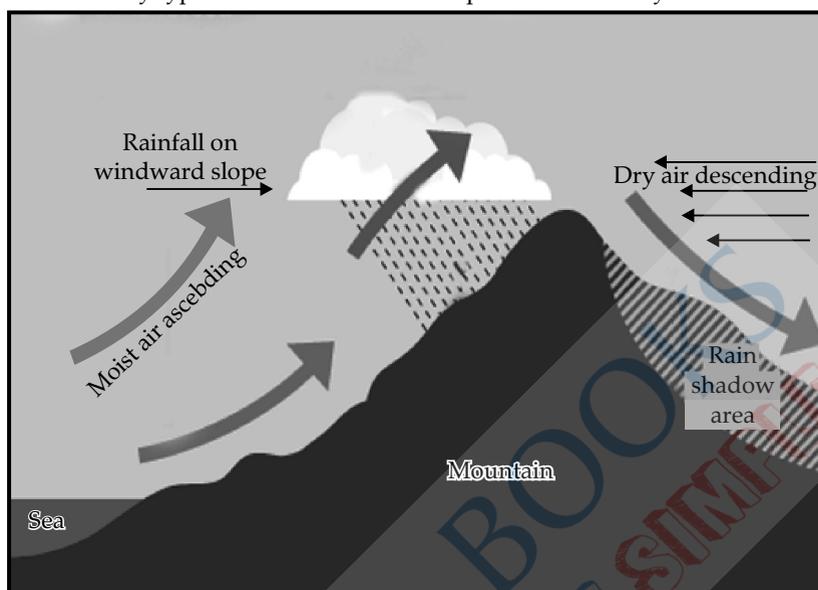
Question 8

- (a) (i) **Altitude** : Atmospheric pressure decreases with increase in altitude as the air there is rarified.
Temperature : Atmospheric pressure and temperature are inversely related. When temperature increases, air expands, becomes lighter and no exerts less pressure.
Water Vapour: Moist air is lighter than dry air and so exerts less pressure. (Any two)
- (ii)
- | | Monsoon Winds | Land of Sea Breeze |
|-------------------|--|--|
| Similarity | ➤ Formed due to differential rates of heating and cooling of landmass and water bodies | ➤ Formed due to differential rates of heating and cooling of landmasses and water bodies |
| Difference | ➤ Seasonal in nature
➤ Brings heavy rainfall | ➤ Daily in nature
➤ Do not bring any rain |
- (b) (i) Due to the rotation of the Earth, Coriolis Force is created which leads to the deflection of winds, which is towards the left in the southern Hemisphere, So it seems, that the Trade winds, which blow regularly from the east, blow from the south East due to this deflection.
(ii) The Chinook is a warm, dry wind blowing down the eastern slopes of the Rockies in North America. As they are warm winds, they raise the temperature and melt the snow on the slopes. Thus, the name "snow eater".
- (c) (i) ➤ Equatorial Low Pressure Belt.
➤ Sub-Tropical High Pressure Belts.
➤ Sub-Polar Low Pressure Belt.
➤ Polar High Pressure Belt.
(ii) A "front" in geographical terms is an invisible wall/boundary between two air masses of different temperatures, warm and cold.
- (d) (i) Cyclones and Anticyclones
(ii) Variable winds are related to pressure systems. They blow in different directions depending on the movement of the pressure systems. They last for a short period and affect a small area.
(iii) Jet streams are high altitude strong winds which blow in narrow bands. The Westerly Jet stream is responsible for bringing in the temperate cyclones, originating from the Mediterranean sea, causing moderate rainfall to the North-western part of Indian, during winter. The Easterly Jet also helps in moving the monsoon winds into a greater part of India, bringing rain.

Question 9

- (a)
- | | FOG | MIST |
|--|---|---|
| | ➤ Fog is cloud formation near the surface of the Earth and it is dense.
➤ Visibility extends upto less than 1 km and poor. | ➤ Mist is the same as Fog, but it is less dense.
➤ Visibility extends upto 2 km. |
- (b) Condensation is a process in which the water V-apour in the atmosphere is either converted into droplets of water or crystals of ice, due to contact cooling.
Cloud, Dew, Frost, Fog, Mist (Any two)

- (c) (i) ➤ Convictional Rainfall
 ➤ Orographic or Relief Rainfall
 ➤ Cyclonic or Frontal Rainfall, Connectional Rainfall is common in Equatorial regions.
- (ii) It is extremely cold in the Polar Region. There is an absence of warm, moisture bearing air or winds which is absolutely essential for any type of rainfall to occur. Precipitation occur only in form of snow.



Orographic or Relief rainfall

Question 10

- (a) SMOG is fog mixed with smoke and dust particles, occurring in winter, usually in industrial cities. It is dangerous as it is harmful for health. It causes bronchitis, asthma, shortness of breath, eye and nose irritation and reduces visibility.
- (b) (i) The vehicular exhaust is a major source of carbon monoxide, sulphur-dioxide and nitrogen oxide and lead. All this leads to air pollution.
 (ii) Chlorofluorocarbons (CFCS) gases are emitted through refrigerators and air – conditioners. It is responsible for global warming, which in turn deplete the ozone layer.
- (c) (i) The natural radioactive pollutants are the cosmic and ultraviolet rays from outer space. Man-made pollutants are emitted from nuclear reactors, atomic tests, nuclear bombs, x- ray tests, nuclear power plants and so on.
 (ii) Radioactive pollution causes high level and long term damage to the environment. The leakage from nuclear installations enters the atmosphere. The liquid effluents contaminate the water bodies and enter into the soil and into the bodies of living organisms through the food chain.
- (d) (i) Organic farming utilises processes such as crop rotation, integrated pest management, use of organic farm manure and bio-fertilisers.
 (ii) ➤ It is important because:
 ➤ It reduces soil pollution.
 ➤ It uses organic fertilisers which help the fertility of the soil and nutrients of crops grown.
 ➤ Organic residues and nutrients are ploughed back to the soil.

Question 11**(a) Two features are:**

- Broad, hardwood trunks with spreading branches and broad leaves.
- Trees grow to a height of 40-50 m and form a thick canopy.
- Trees are of evergreen type, with no distinct leaf shedding period in the year.
- It has a layered structure.

(Any two)

- (b) ➤ They have thick, fleshy stems to store water.
 ➤ Long, deep roots to absorb water from underground.
 ➤ Thorns instead of leaves to restrict transpiration.

(Any two)

- (c) (i) Taiga or cold Temperate central Regions.
 (ii) Tropical Grassland
 (iii) Mediterranean Region.

- (d) (i) The Taiga or the Coniferous Forest region is the richest source of softwood trees, which is used in paper and pulp industries, widely. The trees are found in pure stands and so "lumbering" is a major occupation of the people living in these regions.
- (ii) The Tropical Grasslands or the Savanna region of Africa are located in the Tropical zone, between 10° to 20° N and S of the equator. The region is characterised by hot summers and a short rainy season which allow the growth of tall grasses, with scattered trees.
- (iii) ➤ Long, severely cold winters.
➤ Short warm summers with scanty rainfall.

□□□

