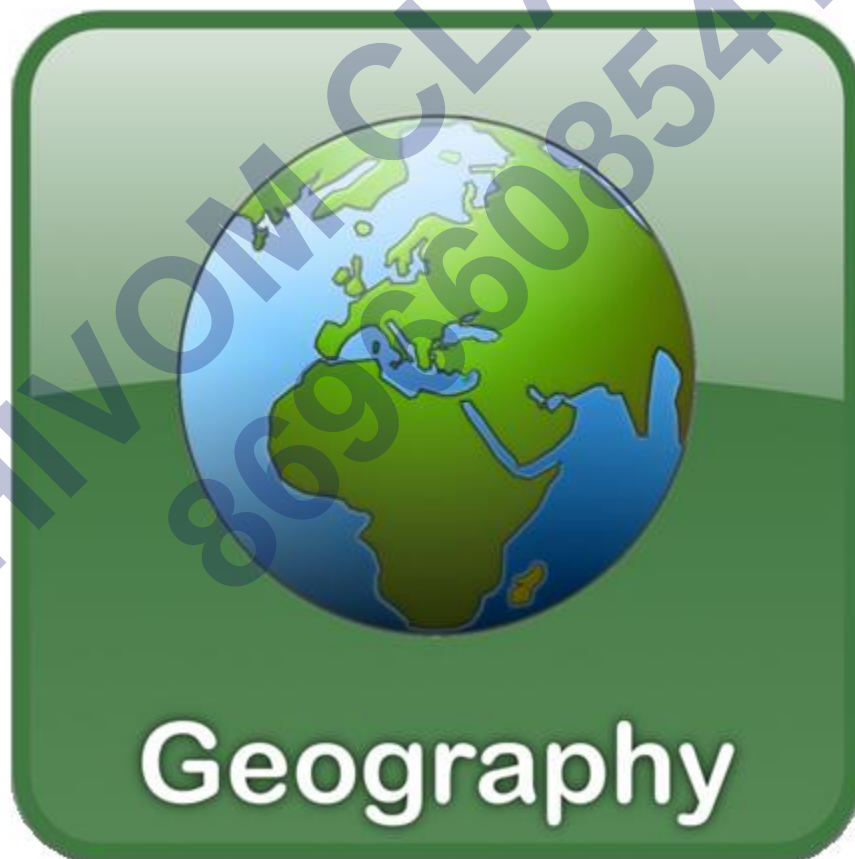


GEOGRAPHY

Chapter 5: Major Domains of the Earth

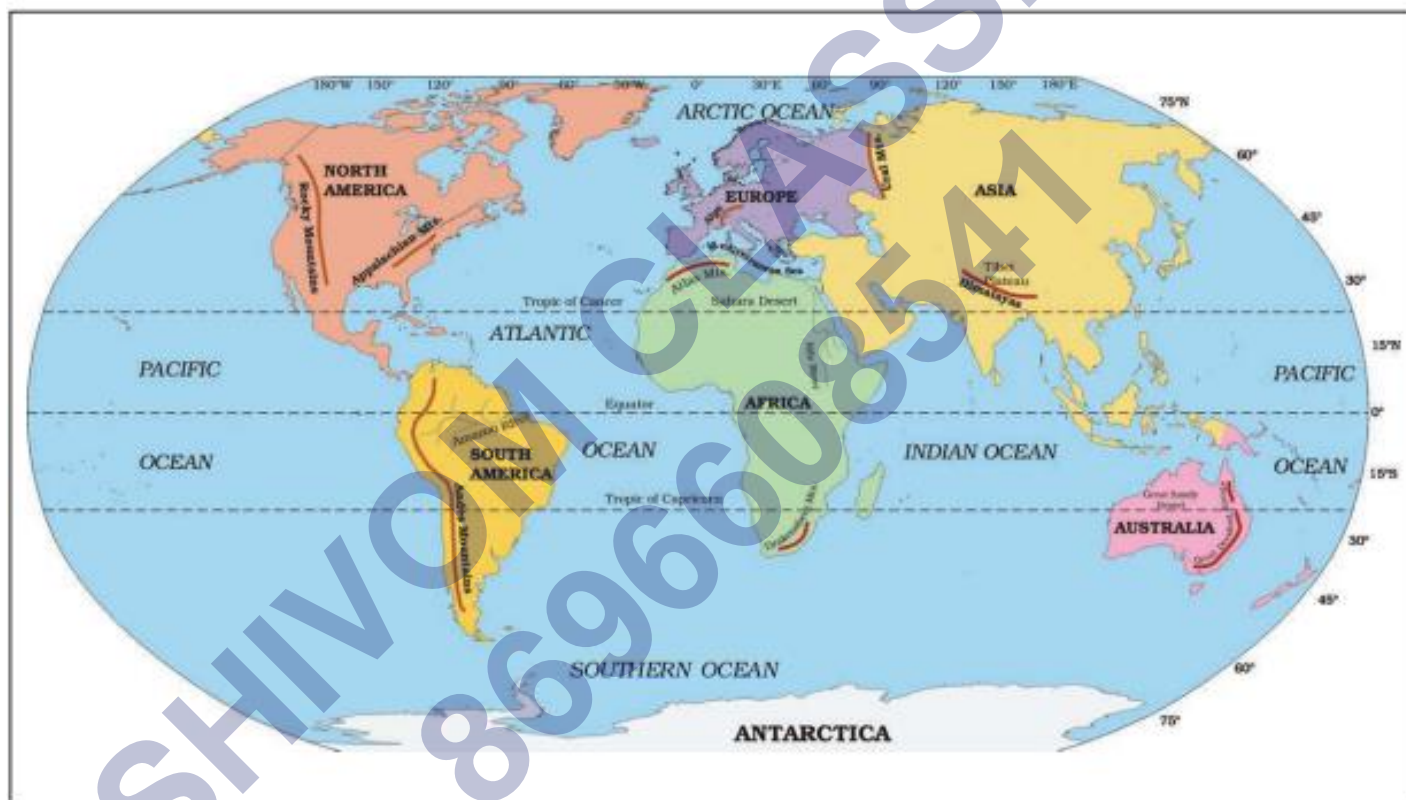


Major Domains of the Earth

There are three main components of the environment, the **lithosphere**, the **hydrosphere** and the **atmosphere**. All the three components meet on the surface of the Earth. The other important zone is the **biosphere** where we find air, land and water together. The biosphere contains all the three forms of life.

Lithosphere

The lithosphere is the solid portion of the Earth. It consists of the Earth's crust and thin layers of soil. The Earth's surface consists of large landmasses known as continents and ocean basins. In the lithosphere, the highest peak is Mt. Everest with a height of 8,848 m. The Mariana Trench in the Pacific Ocean is located at a greatest depth of 11,022 m.



The World : Continents and Oceans

There are seven major continents. These are separated by large water bodies. These continents are – Asia, Europe, Africa, North America, South America, Australia and Antarctica. Look at the map of the world above and notice that the greater part of the land mass lies in the Northern Hemisphere.

Asia is the largest continent. It covers about one-third of the total land area of the earth. The continent lies in the Eastern Hemisphere. The Tropic of Cancer passes through this continent. Asia is separated from Europe by the Ural Mountains on the west. The combined landmass of Europe and Asia is called the Eurasia (Europe + Asia).



Europe is much smaller than Asia. The continent lies to the west of Asia. The Arctic Circle passes through it. It is bound by water bodies on three sides. Look at the map of the world and locate it.



Africa is the second largest continent after Asia. The Equator or 00 latitude runs almost through the middle of the continent. A large part of Africa lies in the Northern Hemisphere. You will find that it is the only continent through which the Tropic of Cancer, the Equator and the Tropic of Capricorn pass.

The Sahara Desert, the world's largest hot desert, is located in Africa. The continent is bound on all sides by oceans and seas. Look at the world map above. You will notice that the world's longest river the Nile, flows through Africa. Notice where the Equator, the Tropic of Cancer and the Tropic of Capricorn pass in the map of Africa.



North America is the third largest continent of the world. It is linked to South America

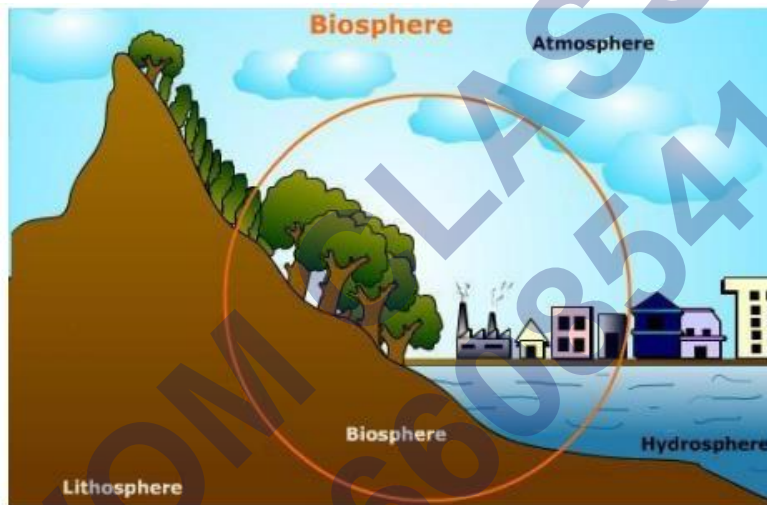
by a very narrow strip of land called the Isthmus of Panama. The continent lies completely in the Northern and Western Hemisphere. Three oceans surround this continent.



South America lies mostly in the Southern Hemisphere. Which two oceans surround it on the east and the west? The Andes, world's longest mountain range, runs through its length from north to south (see map above). South America has the world's largest river, the Amazon.



Australia is the smallest continent that lies entirely in the Southern Hemisphere. It is surrounded on all sides by the oceans and seas. It is called an island continent. Antarctica, completely in the Southern Hemisphere, is a huge continent. The South Pole lies almost at the centre of this continent. As it is located in the South Polar Region, it is permanently covered with thick ice sheets. There are no permanent human settlements. Many countries have research stations in Antarctica. India also has research stations there. These are named as **Maitri** and **Dakshin Gangotri**.



The figure showing all the realms of the Earth

Hydrosphere

The hydrosphere is a realm of the Earth which contains water in all its forms i.e., liquid (sea water), solid (ice sheets) and gas (water vapour). The Earth is known as the **blue planet** as more than 71% of the Earth is covered with water. More than 97% of the Earth's water is found in the oceans. This water is salty and not fit for human consumption. Of the remaining three percent, two percent is frozen in the form of ice sheets and only one percent is available to us in the form of fresh water.

Oceans

Oceans form a major part of the hydrosphere and all oceans are interconnected to each other. The three main movements of ocean waters are in the form of waves, tides and ocean currents. The four major oceans are:



The three main movements of ocean waters are in the form of waves, tides and ocean currents

The Pacific Ocean: It is the largest ocean and covers one third of the Earth. It is circular in shape and surrounds Asia, Australia, North America and South America. The deepest part of the Earth, the Mariana Trench is located in this ocean.



The Atlantic Ocean: It is the second largest ocean. As the coastline of the ocean is highly irregular, many locations on this ocean are used as ports and natural harbours. It is the busiest ocean in the world as much of the trade is carried through its routes. It is 'S' in shape.



The Indian Ocean: This is the only ocean which is named after a country. It is triangular in shape. It surrounds Asia, Africa and Australia.

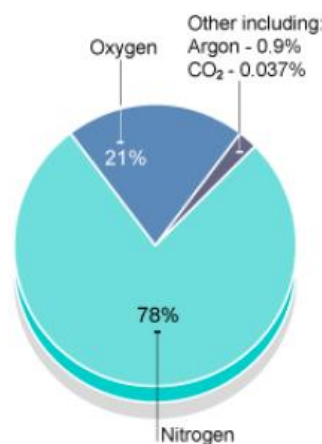


The Arctic Ocean: It is located within the Arctic Circle and surrounds the North Pole. The Bering strait is a narrow stretch of shallow water which connects the Arctic Ocean with the Pacific Ocean.



Atmosphere

- The atmosphere is a thin layer of gas which surrounds the Earth. The atmosphere comprises of various gases. The atmosphere consists mainly of nitrogen (78%), oxygen (21%) and other gases like carbon dioxide, argon, helium etc.
- Oxygen helps in the survival of all the living beings while nitrogen helps in the growth of living organisms.
- Carbon dioxide keeps the planet warm by absorbing the heat reflected by the Earth. The gas also helps in the growth of plants.
- The atmosphere extends up to a height of about 1,600 km above the surface of the Earth. It is divided into five layers based on temperature and composition.
- The layers beginning from the surface of the Earth are the troposphere, the stratosphere, the mesosphere, the thermosphere and the exosphere.
- The density of the atmosphere changes with height. The temperature also decreases at higher altitudes.
- Air in the atmosphere moves from high pressure areas to low pressure areas. Moving air is known as **wind**.



Composition of air in the atmosphere

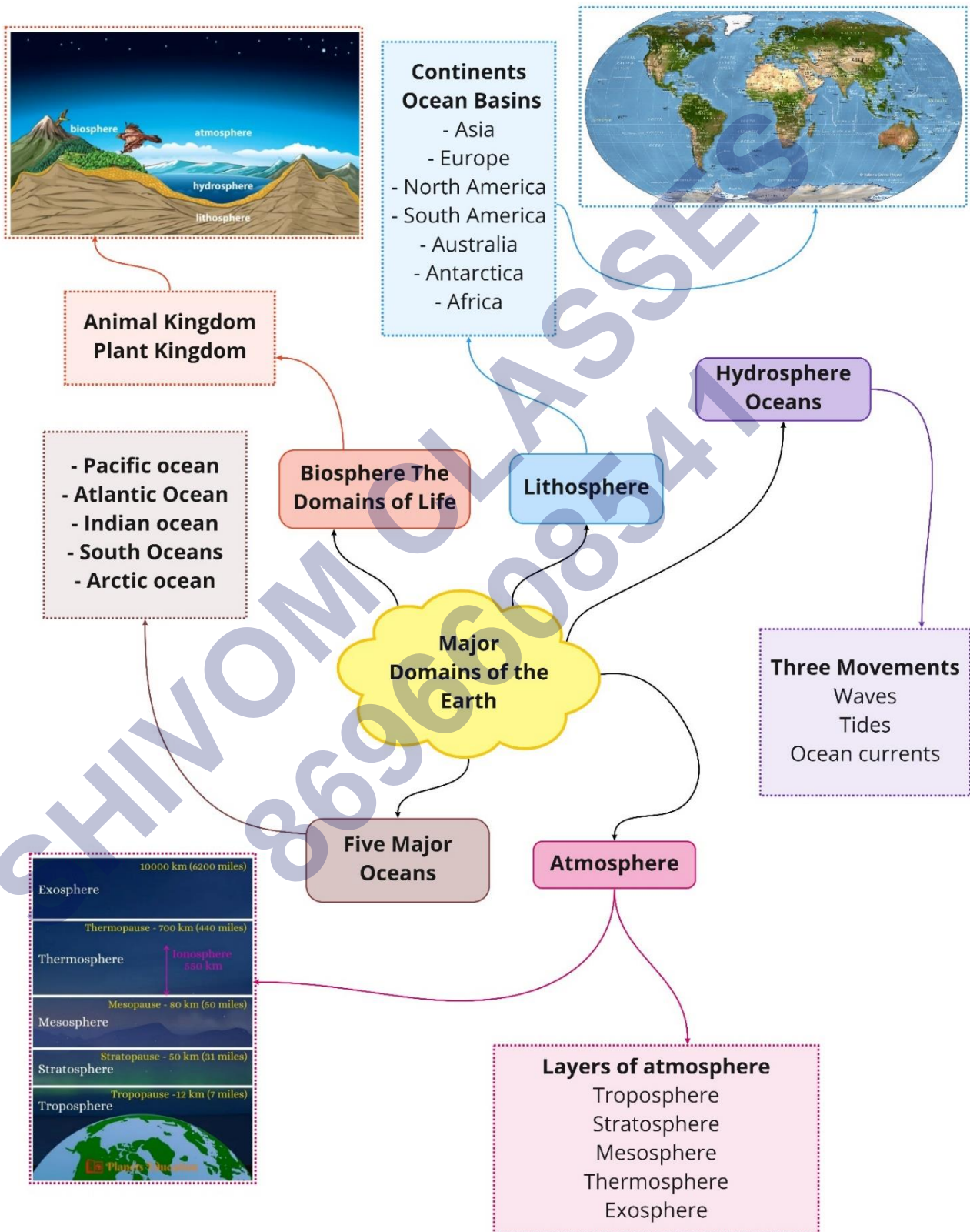
Biosphere

The biosphere is a layer of the Earth where life exists. It is a narrow zone of contact between land, water and air. All the three realms of the Earth interact with each other in this zone. The organisms in this layer can be broadly divided into plants, animal and the human kingdom. All living organisms are dependent on each other for their survival. However, human activities are degrading the environment. Deforestation, mining, emission of liquid wastes from the industries are deteriorating the environment. Natural calamities like Earthquakes and volcanic eruptions also change the surface of the Earth. For example, parts of the Andaman and Nicobar Islands were submerged under water due to the tsunami which hit the Indian coasts in 2004.

The release of carbon dioxide into the air has led to an increase in the global temperature. We need to use the resources in such a way that the ecological balance of the Earth is maintained.



Class : 6th Social Studies (The Earth Our Habit)
Chapter - 5 : Major Domains of the Earth



Important Questions

➤ Multiple Choice Questions:

Question 1. The Tropic of Cancer, the Equator and the Tropic of Capricorn pass through:

- (a) Asia
- (b) Africa
- (c) South America
- (d) Antarctica

Question 2. The combined landmass of Europe and Asia is called:

- (a) Asia
- (b) Africa
- (c) South America
- (d) Eurasia

Question 3. Name the Blue Planet:

- (a) Earth
- (b) Oceans
- (c) Mountains
- (d) Rivers

Question 4. The first woman climber on the peak of Mt. Everest is:

- (a) Bachendri Pal
- (b) Junko Tabei
- (c) Edmund Hillary
- (d) None

Question 5. A narrow strip of land joining two landmasses is called:

- (a) Strait
- (b) Isthmus
- (c) Strip
- (d) Beach

Question 6. About 29% of Earth is covered with:

- (a) Land
- (b) Water

(c) Mountains

(d) Rivers

Question 7. More than 97% of the Earth's water is found in the:

(a) Land

(b) Ocean

(c) Mountains

(d) Rivers

Question 8. Which water is too salty?

(a) Land

(b) Ocean

(c) Mountains

(d) River

Question 9. Maitri and Dakshin Gangotri are the India's research stations situated in:

(a) Asia

(b) Africa

(c) South America

(d) Antarctica

Question 10. Which ocean is triangular in shape?

(a) Pacific

(b) Indian

(c) Atlantic

(d) Arctic

Question 11. Which one of the following continents lies on both sides of the equator

(a) South America

(b) Australia

(c) Africa

(d) Europe

Question 12. Which of the following is NOT a continent?

(a) India

(b) Africa

- (c) Europe
- (d) Australia

Question 13. The _____ ocean is named after a country

- (a) Arctic
- (b) Indian
- (c) Antarctic
- (d) Pacific

Question 14. Which of the following is NOT among the major domains of the earth?

- (a) Lithosphere
- (b) Hydrosphere
- (c) Stratosphere
- (d) Atmosphere

Question 15. The domain of the earth consisting of solid rocks is

- (a) Hydrosphere
- (b) Atmosphere
- (c) Lithosphere
- (d) Mesosphere

➤ **Fill in the blanks:**

1. Life exists in the _____.
2. _____ is the only continent through which the tropic of Cancer, the Equator and the Capricorn pass.
3. _____ is the world's longest mountain range.
4. _____ is called an island country.
5. The world's longest river the _____ flows through Africa.
6. The Arctic Ocean is connected with the Pacific Ocean by a narrow stretch of shallow water known as _____.
7. Europe lies to the _____ of Asia.

➤ **Write true (T) or false (F):**

1. The Atlantic Ocean is 'S' shaped.
2. Biosphere is one of the layers of the Atmosphere.

3. The South Pole lies almost at the centre of Antarctica.
4. Africa is the second largest country after Asia.
5. Pacific Ocean is 'L' in shape.
6. The coastline of Atlantic Ocean is highly indented.
7. The atmosphere is composed mainly of nitrogen and argon.

➤ Very Short Questions:

1. Why nitrogen considered as a significant gas?
2. Name the three main components of the environment.
3. Name the oceans that surround the continent North America.
4. Which two oceans surround South America on the east and the west?
5. Why Carbon dioxide (CO₂) is considered as an important constituent of air?
6. Why oxygen is so important?
7. Write the name of Indian research stations in Antarctica.
8. State the percentage of the earth which is covered with water.
9. What percentage of earth's water found in oceans?
10. Which is the world's longest river?

➤ Short Questions:

1. Which two continents lie entirely in the Southern and Northern Hemisphere?
2. Write the color used for the following: water bodies, mountain, plateau and for plains.
3. Write the main reason of air pollution.
4. What is 'Atmosphere'? Why atmosphere is so important?
5. Why do mountaineers carry oxygen cylinders with them?
6. Write a short note on the continent – Antarctica.

➤ Long Questions:

1. Distinguish between stratosphere and troposphere.
2. Define global warming. State the factors responsible for it.
3. Which is the second largest continent after Asia? Mention four features of this continent.
4. What are the major effects of water pollution?

5. Write short note on Atlantic Ocean, Arctic Ocean and Indian Ocean.

ANSWER KEY –

➤ Multiple Choice Answer:

1. (b) Africa
2. (d) Eurasia
3. (a) Earth
4. (b) Junko Tabai
5. (b) Isthmus
6. (a) Land
7. (b) Ocean
8. (b) Ocean
9. (d) Antarctica
10. (b) Indian
11. (c) Africa
12. (a) India
13. (b) Indian
14. (c) Stratosphere
15. (c) Lithosphere

➤ Fill in the blanks:

1. biosphere zone
2. Africa
3. The Andes
4. Australia
5. Nile
6. Bering Strait
7. west

➤ Write true (T) or false (F):

1. True

2. False
3. True
4. True
5. False
6. True
7. False

➤ Very Short Answer:

1. Nitrogen is considered as a significant gas because it helps in the growth of living organisms.
2. The three main components of the environment are lithosphere, atmosphere and hydrosphere.
3. Oceans that surround the continent North America are Pacific Ocean, Atlantic Ocean and Arctic Ocean.
4. On the east –Atlantic Ocean and on the west – Pacific Ocean.
5. Carbon dioxide (CO₂) is important as it absorbs heat radiated by the earth, thereby keeping the planet warm. It is also essential for the growth of plants.
6. Oxygen is essential for our survival because oxygen is the breath of life.
7. Maitri and Dakshin Gangotri are the Indian research stations in Antarctica.
8. More than 71 percent of the earth is covered with water.
9. More than 97% of the Earth's water is found in the ocean.
10. The world's longest river is Nile which flows through Africa.

➤ Short Answer:

1. Two continents lying entirely in northern hemisphere are North America and Europe. Two continents lying entirely in southern hemisphere are South America and Australia.
2. There are seven major continents separated by large water bodies. These continents are – Asia, Europe, Africa, North America, South America, Australia and Antarctica.
3. Emission from industries, thermal power plants and vehicles, pollutes the air. Carbon dioxide (CO₂) is an important constituent of air but increase in the amount of CO₂ leads to global warming.
4. The earth is surrounded by a layer of gas called the atmosphere. This thin blanket of air is an integral and important aspect of the planet. It provides us with the air

we breathe and protects us from the harmful effects of sun’s rays.

5. The climbers experience problems in breathing as density of air decreases rapidly as we go up. That’s why they carry oxygen cylinders with them to be able to breathe at high altitudes.
6. Antarctica, completely in the Southern Hemisphere, is a huge continent. The South Pole lies almost at the centre of this continent. As it is located in the South Polar Region, it is permanently covered with thick ice sheets. There are no permanent human settlements. Many countries have research stations in Antarctica.

➤ **Long Answer:**

1. .

Troposphere	Stratosphere
The troposphere is the lowest portion of Earth's atmosphere.	The stratosphere is the second major layer of Earth's atmosphere, just above the troposphere and below the mesosphere
Troposphere near the Earth's surface is cooler layers higher up and warmer layers farther down.	Stratosphere is stratified in temperature, with warmer layers higher up and cooler layers farther down.
About 80 % of the total mass of the atmosphere is contained in troposphere.	This contains about 19.9 % of the total mass found in the atmosphere.
It is also the layer where the majority of our weather phenomenon occurs.	Very little weather phenomenon occurs in the stratosphere

2. **Global warming is the increase average temperature of the Earth's near-surface air and oceans:**

- Most prominent factor is from the combustion of fossil fuels in cars, factories and electricity production. They produce carbon dioxide, which is the most common gas responsible for the global warming.
- Other contributors include methane released from landfills and fertilizers.
- Gases used for refrigeration and industrial processes.
- The loss of forests that would otherwise store CO₂.

3. **Africa is the second largest continent after Asia. Four features of this continent are:**

- The equator passes through the middle of Africa, splitting it into Northern Hemisphere and Southern Hemisphere.
- The Sahara Desert, the world's largest hot desert, is located in Africa.
- The continent is bound on all sides by oceans and seas.
- The Nile, the world's longest river flows through this continent.

4. **The major effects of water pollution are:**

- The food chain is damaged. When toxins are in water, the toxins travel from the water to the animals and to humans when the animal's meat is eaten.
- Diseases can spread via polluted water. Infectious diseases such as typhoid and cholera can be extended from drinking contaminated water.
- Acid rain contains sulfate particles, which can harm fish or plant life in lakes and rivers.
- Pollutants in the water will alter the overall chemistry of the water, causing changes in acidity, temperature and conductivity. These factors all have an affect on the marine life.
- Marine food sources are contaminated or eliminated by water pollution.
- Altered water temperatures due to human actions can kill the marine life and affect the delicate ecological balance in bodies of water, especially lakes and rivers.

5.

- **Atlantic Ocean:** The Atlantic Ocean is the second largest Ocean in the world. It is 'S' shaped. It is flanked by the North and South Americas on the western side, and Europe and Africa on the eastern side. The coastline of Atlantic Ocean is highly indented which provides ideal location for natural harbours and ports.
- **Arctic Ocean:** The Arctic Ocean is located within the Arctic Circle and surrounds the North Pole. It is connected with the Pacific Ocean by a narrow stretch of shallow water known as Bering strait. It is bound by northern coasts of North America and Eurasia.
- **Indian Ocean:** The Indian Ocean is the only ocean named after a country, that is, India. The shape of ocean is almost triangular. In the north, it is bound by Asia, in the west by Africa and in the east by Australia.