

# Geography Notes

## Chapter 2 Atmosphere

### Q.1 Define the following

1. Air :- A mixture of gases forming bulk of atmosphere.
2. Atmosphere :- The envelope of air surrounding the earth.
3. Troposphere :- The lowest layer of the atmosphere.
4. Stratosphere :- The intermediate layer of the atmosphere.
5. Mesosphere :- The layer lie above the stratosphere and extend from the stratosphere to about 80km above the surface of the earth.
6. Greenhouse effect :- The greenhouse effect is the natural process by which the atmosphere traps some of the Sun's energy warming the Earth enough to support life.

### Q.2 Answer in single term

1. The envelope of air surrounding the earth.

Answer :- Atmosphere

2. A mixture of gases.

Answer :- Air

3. The lowest layer of the atmosphere in which all in weather changes take place.

Answer :- Troposphere

### Q.3 Match the following

Column A

Column B

Troposphere	Lowest layer
Stratosphere	Ozone rich layer
Mesosphere	Coldest layer
Thermosphere	Hottest layer
Ozone	Protect from harmful radiation

#### Q.4 Answer in brief

1. Define Atmosphere.

Answer – The Earth is surrounded by an envelope of Air which is called atmosphere. The atmosphere extends about 1000 kilometers from the surface of the earth.

2. Name the two most important gases in the atmosphere.

Answer - Nitrogen and oxygen are the two most important gases in the atmosphere.

3. Name the four layers of the atmosphere.

Answer – The four major layers of atmosphere of the earth are :

- (I) Troposphere
- (II) Stratosphere
- (III) Mesosphere
- (IV) Thermosphere

4. Name the lowest and the densest layer of the atmosphere.

Answer - Troposphere is the lowest and the densest layer of the atmosphere.

5. Which layer makes the radio communication possible ?

Answer - Ionosphere mixture radio communication possible.

6. Which layer of the atmosphere is suitable for flying jet aeroplanes ?

Answer – Stratosphere is suitable for flying jet aeroplanes.

7. What is the usefulness of nitrogen gas ?

Answer – Nitrogen helps in the growth of living organism especially the plants.

8. Which layer contains most of the ozone gas of the atmosphere ?

Answer - Stratosphere contains most of the ozone gas of the atmosphere.

9. Define Green House Effect.

Answer – The greenhouse effect is a natural warming process. Carbon dioxide (CO<sup>2</sup>) and certain other gases are always present in the atmosphere. These gases create a warming effect that has some similarities to the warming inside a greenhouse, hence the name is “greenhouse effect.”

10. Name any two Greenhouse gases.

Answer - Carbon dioxide and Methane are the two greenhouse gases.

11. “The change in weather will affect the type of crops grown.” Justify.

Answer – The changes in weather will also affect the types of crops grown in different part of the world. Some crops, such as wheat and rice grow in better and higher temperatures but other plants, such as maize and sugarcane do not. The effect of a change in the weather on plant growth may lead to some countries not having enough food, and many people suffer from hunger.

12. Define global warming.

Answer – Many human activities like burning fossil fuels, cutting of trees, etc., have contributed huge amount of additional greenhouse gases into the atmosphere, leading to global warming.

#### Q.5 Give Reasons for following

1. Atmosphere makes earth habitable by maintaining right temperature on earth surface.

Answer – Because distribution of heat from one part of the earth to the other also occurs through the atmosphere. The large amount of energy available from the sun in the tropical region is thus carried to the colder regions, thereby reducing the temperature differences between various part of the earth.

2. Long distance aircrafts fly in the lower part of the stratosphere.

Answer – Long distance aircrafts fly in the lower part of the stratosphere so as to take advantage of the lack of air resistance.

#### Q.6 Distinguish between

1. Troposphere and Stratosphere
  - Troposphere
  - Troposphere is the lowest and densest layer of the atmosphere.

- The average height of this layer is taken as about 11 kilometers and about 80% of the total mass of atmosphere is contained in this layer.
- All weather phenomena occur in this very layer. The temperature in this layer falls with increasing height.

#### ➤ Stratosphere

- The second layer of the atmosphere is called stratosphere.
- It extends from an average altitude of 11 to 50 kilometer. Most of the ozone of the atmosphere is contained in this layer.
- Meteors entering the earth's atmosphere generally get burnt in this layer and long distance aircrafts fly in the lower part of stratosphere.

## 2. Mesosphere and Thermosphere

#### ➤ Mesosphere

- Mesosphere is the third layer of the atmosphere occurring between the stratosphere and the thermosphere.
- It lies between 50 to 80 kilometer above the Earth surface.
- In the mesosphere, the temperature falls with elevation and it is coldest of the atmospheric layer.
- In this layer lot of meteors burn off while entering the earth's atmosphere.

#### ➤ Thermosphere

- It is the fourth layer of atmosphere.
- It extends from 80 to 600 km above the Earth's surface and located highest above earth surface.
- It is the hottest layer in atmosphere and it even absorbs small amount of solar energy that significantly increase the air temperature.
- It is divided into two parts :  
Ionosphere and Thermosphere.

### Q.7 Detail Answers

1. Describe the composition of atmosphere and importance of each of its constituents.

Answer – Air used as synonym for atmosphere is not a specific gas but a mixture of gases. Nitrogen amounts to nearly 78 % of volume of air while oxygen makes up about 21%. The remaining 1% of air includes all remaining gases found in atmosphere. Rain and Snowfall which

provide most of water to plants come from water vapour present in lower layers of atmosphere.

2. Analyse importance of atmosphere.

Answer – Atmosphere is one of the necessary components of biosphere and without their life would not have been possible on our planet :-

- The atmosphere acts as a shield around the earth and protects the Earth from cosmic rays.
- It also acts as a barrier protecting the earth from the materials which can cause a lot of damage on the earth.
- Even radio communications on the earth are possible as the upper layers of the atmosphere stop sound waves from escaping into space.
- Together with oceans, the atmosphere shapes Earth's climate and weather pattern and make the earth habitable by maintaining right temperature on earth's surface.

3. Name the layers of the atmosphere and explain their importance.

Answer – The four major layers of atmosphere of the earth are :-

- **Troposphere** – Troposphere is the lowest and the densest layer of the atmosphere. The average height of this layer is taken about 11 kilometres. About 80% of the total mass of atmosphere is contained in this layer. All dust particle and water vapours are contained in it and the all weather phenomena occur in this very layer.
- **Stratosphere** – The second layer of the atmosphere is called stratosphere, which extends from an average altitude of 11 to 50 kilometres. Most after ocean of atmosphere is contained in this layer. Long distance and crafts fly in the lower part of the stratosphere.
- **Mesosphere** – Mesosphere is the third layer of the atmosphere. It lie between 50 to 80 km above the Earth's surface. In this layer, temperature falls with the elevation and it is the coldest of the atmospheric layer. It is also the layer in which a lot of meteors burn up while entering the earth's atmosphere.
- **Thermosphere** – It is the fourth layer of the atmosphere which extends from 80 to 600 km above the Earth's surface and is located highest above the Earth's surface. It is the hottest layer of the atmosphere and divided into two parts :-
  - I. Ionosphere
  - II. Exosphere

4. Analyse the impact of global warming.

Answer – These are the impact of global warming on earth :

- The change in weather will affect the kind of crop that can be grown. Plants, animals and even people may find it difficult to survive in different conditions.
- Higher temperature will make the water of the seas and oceans expand. Ice melting in the Antarctic and Greenland will flow into the sea and sea level will rise. Higher sea level will threaten low-lying coastal areas of world such as Netherland and Bangladesh.
- The changes in weather will also affect the type of crops grown in different parts of the world. Some crops, such as wheat and rice grow better in higher temperatures, but other plants such as maize and sugar can do not.
- It has taken millions of us for life to become used to the conditions on earth. As weather and temperature changes the homes of plants and animals will be affected all over the world. For example, polar bears and seals will have to find the new land for hunting and leaving it ice in Arctic melts.

5. Suggest any four ways to reduce global warming.

Answer – Some ways to reduce global warming are below :-

- Plant more trees.
- Ban on use of chlorofluorocarbons.
- Use of energy efficient vehicles.
- Using alternative energy resources like solar and tidal etc.
- Following principle of 3Rs, i.e., Reuse, Recycle and Reduce.

6. What is ozone layer ? During the last few decades human have caused a severe damage to the ozone layer. Explain.

Answer – The ozone layer forms a thick layer in stratosphere, encircling the earth, that has large amount of ozone in it. It protects our planet, i.e., Earth from the harmful radiation (Ultraviolet radiation) that comes from the Sun. The ozone layer has the capability to absorb almost 97 to 99% of the harmful ultraviolet radiation that Sun emits.