



## **ASSIGNMENTS: FA2**

### **Chapter- 2**

### **Subject: Geography**

### **Topic: The Atmosphere**

#### **A. Give short answers.**

##### **1. What is the atmosphere?**

Ans: Atmosphere is the blanket of air surrounding the earth.

##### **2. What are the chief constituent of the atmosphere?**

Ans: Chief constituents of atmosphere are 78% nitrogen, 21% oxygen, 0.03% carbon dioxide and 0.97% other gases.

##### **3. Name the five main layers of the atmosphere in order of distance from the ground.**

Ans: The five main layers of atmosphere in order of their distance from the ground are:

Troposphere. Stratosphere. Mesosphere. Thermosphere. Exosphere

##### **4. In which part of the atmosphere does the ozonosphere lie?**

Ans: Ozonosphere lies in the stratosphere layer of the atmosphere.

##### **5. What is insolation?**

Ans. Insolation means the incoming solar energy received by the earth.

##### **6. What is air-pollution?**

Ans: Any harmful change in the composition of air is known as air-pollution. This may happen if the process of regulating the composition of it is disturbed or if harmful substances are added to the air.

**7. Name one natural and one man made agent of air-pollution.**

Ans: Volcanoes release huge amount of poisonous gases, dust and ash therefore they are natural agents of air-pollution. Industrial areas and auto mobiles are man-made agents of air-pollution.

**8. Name two sources of CFCs.**

Ans: Many kinds of sprays and cooling gases used in refrigerator and air-conditioners release CFC gases.

**9. Why is the depletion of atmospheric ozone bad for us?**

Ans: Ozone depletion allows more of the sun's harmful ultraviolet rays to reach us. These can give us sunburns and skin cancers and can also damage our eyes. Therefore, ozone depletion is bad for us.

**Distinguish between the following.**

**1. Troposphere and tropopause.**

The lowest and the densest layer of the atmosphere is known as troposphere. Within the troposphere, the temperature decreases as we move up.

The upper limit of the troposphere is marked by the tropopause where the general decrease in temperature with altitude stops.

**2. Ozonosphere and ionosphere.**

A part of the stratosphere is known as Ozonosphere, it has the maximum concentration of Ozone in the atmosphere.

Ozonosphere protects us by absorbing the harmful ultraviolet rays of the sun. Also Ozonosphere becomes quite warm by absorbing these rays.

There is a layer in the atmosphere in which the molecules of the atmospheric gases are broken into charged particles called ions that layer is called Ionosphere.

It reflects or sends back, radio waves towards the earth and this helps in radio transmission.

**3. Insolation and terrestrial radiation.**

The solar energy received by the earth is called incoming solar radiation or insolation. This energy is chiefly responsible for heating the earth surface.

The heated surface of the earth in turn radiates heat, this is called terrestrial radiation. The atmosphere is heated mainly by terrestrial radiation.

**4. Greenhouse effect and global warming.**

Greenhouse effect means the trappings of heat due to the reflection of terrestrial radiation towards the earth, mainly by atmospheric carbon dioxide.

A gradual rise in temperature across the world is called as global warming.

**B. Answer with brief explanations.**

**1. How did the troposphere get its name?**

Ans. The troposphere gets its name from the Greek word topos, which means turning.

This is because all the weather changes that we experience take place in the troposphere.

**2. Why is the Atmosphere important?**

Ans. That Atmosphere is essential for life on earth. Atmosphere gives us oxygen that we breathe.

Atmosphere stops the sun's rays from heating the earth beyond certain level. The atmosphere protects us from the harmful ultraviolet rays of the sun.

Nitrogen is required in various forms to keep the soil fertile. Atmosphere gives us rain.

**3. How does the Atmosphere get heated?**

Ans. The sun is the chief source of heat and light for the earth. It radiates energy in all directions. The earth receives only a very small fraction of this energy. This is called insolation this energy is chiefly responsible for heating the earth's surface.

The earth surface is heated and this in turn radiates the heat which is called terrestrial radiation. Atmosphere is heated mainly by terrestrial radiation.

**4. What is the greenhouse effect? How does it help us or harm us?**

Ans. Greenhouse effect means the trapping of heat due to the reflection of terrestrial radiation towards the earth, mainly by atmospheric carbon dioxide.

Without this trapping of heat, the earth would have been very cold at night when there is no insolation to replace the heat lost through terrestrial radiation. In fact, it would have been so cold that we would not have survived, but at the same time too much of it can be harmful. If it goes on increasing, it would cause global warming.

**5. Why is global warming bad? Give any three reasons.**

Ans. Continue global warming may produce several ill effects they are:

It could cause much of the ice at the poles and on mountains to melt this in turn would cause the water level of the oceans to rise and many islands and coastal areas would go under water. Climate and rainfall pattern may change.

The general rise in temperature may change seasonal behavior of some plants and animals, this could ultimately cause extinction of many creatures.

Change in climate and rainfall pattern may result in droughts and floods.

**6. How do our activities lead to global warming? How can we control it? Mention any three ways.**

Ans. We are increasing the emission of carbon dioxide by building factories and using vehicles and at the same time we are clearing forests to use land for buildings, agriculture and industries. This is gradually increasing the amount of carbon dioxide in the air and in turn, the greenhouse effect. As a result global temperature on the land and in the ocean is rising.

Here are the ways with which we can check global warming:

We can plant trees, this helps reduce global warming.

We can try to save electricity as power generation uses fuels and increases global warming.

We can reuse and recycle things to save energy used in factories to make these things.

**7. What is an ozone hole? Why does one form over the South Pole every spring?**

Ans. CFCs released in the troposphere gradually move up to the stratosphere.

They there stick to the ice clouds that form over Antarctica during the intensely cold and continuously dark winter. When sunlight returns in spring the clouds melt and the CFCs on the cloud surfaces react to produce chlorine, rapidly destroying ozone. Therefore, ozone hole is formed over the South Pole every spring.

**Fill in the blanks.**

1. Gravity
2. Troposphere
3. ozone
4. mesosphere
5. wind
6. conduction
7. global warming
8. pollutants
9. CFCs.

**Choose the correct option.**

- 1-c, 2-d, 3-b, 4-c, 5-b, 6-b, 7-a, 8-b, 9-d.

## **TOPIC: WEATHER AND CLIMATE**

**Chapter: 3 Assignments: FA2**

**A. Give short answers.**

**1. Name five elements of weather.**

Ans. The five elements of weather are: temperature, atmospheric pressure, humidity, precipitations, cloud cover, wind speed and direction.

**2. Name two scales used for measuring temperature.**

Ans. The two most commonly used scales for the measurement of temperature are the Celsius and the Fahrenheit scales.

**3. What is atmospheric pressure?**

Ans. The weight of the atmosphere pushing down on a unit of area on the earth's surface is called atmospheric pressure.

**4. How is wind named?**

Ans. Wind is named after the direction from which it is blowing.

For example, wind blowing from the north is called a north wind.

**5. Name an instrument used for measuring relative humidity.**

Ans. Relative humidity can be measured with the help of hygrometer.

**6. Name two forms of precipitation.**

Ans. Rain and snow two forms of precipitation.

**7. What is the use of rain gauge?**

Ans. The amount of rainfall at a place over a particular period is measured with the help of a rain gauge.

**8. What is meteorology?**

Ans. The scientific study of weather condition is called Meteorology.

## **B. Distinguish between the following :**

### **1. Weather and climate.**

Weather is the state of the atmosphere at a particular place and at a particular time. It may change within a very short time.

It relates to a small area.

Climate is the regular pattern of weather conditions at a place over a long period. It remains unchanged over a long period of time.

It relates to a fairly large area.

### **2. Regular Thermometer and six's maximum and minimum Thermometer.**

Air temperature is a measure of how hot or cold air is. Air temperature is measured with the help of a Thermometer.

Thermometer is generally a narrow glass tube filled with mercury or alcohol.

A special type of Thermometer is used to measure the maximum and minimum temperatures during a day. It is called six's maximum and minimum Thermometer.

This thermometer is a U shaped tube with a separate indicator in each limb.

One indicator shows the maximum temperature and other shows the minimum temperature.

### **3. Mercury barometer and Aneroid barometer.**

Mercury barometer is a simple barometer consists of a long, mercury filled glass tube inverted over a cup of mercury. The pressure of air on the mercury in the cup pushes up the mercury in the tube. Atmospheric pressure is measured in terms of the height of the mercury column.

Aneroid barometer is more commonly used, It does not use any liquid, and is therefore, easier to handle. It has a metal box, which is partially emptied of air.

The box is very sensitive to vibration in the air pressure. It expands when the pressure is low and gets compressed when the pressure is high. The box is connected to a pointer which moves over a scale to indicate the atmospheric pressure.

### **4. Isotherm and Isohyets.**

Isotherm is a line drawn on a map to join places where the temperature at sea level is the same at a given time.

Isohyet is a line drawn on a map to join places that have the same mean annual rainfall.

**C. Give reasons for the following.**

**1. Information about the weather is very useful.**

Weather affects our daily lives in many ways.

For example, you take your raincoat to school on a rainy day. And if there is a storm warning, Fisherman do not go out to sea and flight timings may be changed.

Information about the weather is very useful, as it enables us to take precautions against bad weather.

**2. Mercury and alcohol are often used in thermometers.**

Mercury and alcohol are the liquids that do not stick to the wall of a glass tube. Hence, they rise and fall in a thermometer's tube according to the rise and fall in the air temperature.

Therefore, these liquids are used.

**3. A Thermometer is never kept in direction sunlight.**

While recording air temperature we must not keep the thermometer in direction sunlight because the temperature is to be recorded is of the air and not of the rays of the sun.

**4. Atmospheric pressure decreases with increasing altitude.**

The atmosphere is dense near the earth surface. As one climbs higher, it becomes less dense and exerts less pressure. Therefore, atmospheric pressure decreases with increasing altitude.

**5. Atmospheric pressure increases with a fall in air temperature.**

Air becomes dense and heavy when its temperature decreases. Cold air exerts more pressure and it sinks, or flows downwards. Therefore atmospheric pressure increases with a fall in air temperature.

**6. We feel sticky and uncomfortable on a hot and humid day.**

On a hot day with a high relative humidity, the weather will be sultry and uncomfortable. This is because we shall sweat a lot but the sweat will not easily change to vapour.

When relative humidity of air at a given temperature is 100% the air cannot hold any more water vapor at that particular temperature that is why the sweat does not change to vapour.

**7. A Rain gauge is kept in an open space away from trees and buildings.**

The rain gauge is kept in the open, level space away from trees and buildings. This prevents rainwater collected on the trees and buildings from falling into the rain gauge.

**D. Answer with brief explanations.**

**1. How does climate affect us?**

Ans. Climate affects our lives in various ways.

It determines what kind of clothes we wear.

Climate determines what crops we grow and what we eat. Sometimes, climate influences the designs of our houses.

It also determines the kind of plants and animals we see around us.

**2. What does wind speed depend on? Explain how wind speed is measured.**

Ans. The speed of wind depends on the pressure difference between two regions. When the difference is high, wind rushes from the high pressure region to the low-pressure region at a great speed.

An anemometer is an instrument which is used to measure the speed of wind.

It consists of three or four cups attached to a rotating shaft by thin rods. When wind blows, the cups and the shaft rotate. The speed of the wind is read using a meter similar to a car's speedometer attached to the shaft.

**3. What does a relative humidity of 60% mean?**

Ans. A relative humidity of 60% means that the air holds 60% of the water vapour. It is capable of holding at this temperature.

**4. What is precipitation? How does it occur?**



Ans. Rise in temperature causes evaporation. Warm air can hold more water vapour than cold air can. As warm air rises, it cools down and can no longer hold all the water vapour it is carrying. The excess vapour then condenses into tiny droplets of water.

If temperature is low enough, the vapour may change into tiny crystals of ice. These droplets or crystals are so light that they float in the air, when they bump into each other and stick together, form large droplets or crystals. Then they are too heavy to float. Thus they fall as rain or snow. The falling of condensed water vapour is called precipitation.

**E. Fill in the blanks.**

1. Six's maximum and minimum Thermometer
2. Freezing, boiling
3. 76 cm
4. Air pressure
5. High, low
6. Low
7. Total
8. Thunderstorms

**F. Choose the correct option.**

- 1-b, 2-d, 3-d, 4-c, 5-a, 6-d, 7-b, 8- b, 9-

