

Class 8 Online class work of Chemistry on Chapter Pollution of Air and Water

Q. 1. Define:

Air Pollution: Contamination of air with smoke, dust and harmful gases is called Air Pollution.

Pollutants: The substances causing pollution are called pollutants

Greenhouse effect: The phenomenon of trapping of the sun's radiation by the gases present in the earth's atmosphere is called Greenhouse Effect.

Global Warming: As the increase in average temperature of the earth's atmosphere that causes corresponding changes in climate.

Water Pollution: The contamination of water with unwanted and harmful substances

Potable Water: The water which is suitable for drinking.

Acid Rains: The oxides of carbon, nitrogen and sulphur are acidic in nature. They combine with water present in the air and form acid rains.

Eutrophication: Various water pollutants such as detergents, pesticides and fertilizers, etc. Provide additional nutrition and weeds and plants like algae present in the water body leading is called Eutrophication.

Q.2. What are the sources of Air Pollution?

Ans: The various sources of Air Pollution are:

- i) Burning / combustion of fuel
- ii) Vehicular emission
- iii) Industrial emission
- iv) Emission from power plants
- v) Deforestation
- vi) CFCs (Chlorofluorocarbons)

Q.3. What are the effects of Air Pollution?

Ans: The various effects of Air Pollution are:

- a) Global Warming
- b) Acid Rain
- c) Depletion of ozone layer
- d) Health Problems

Q.4. What are the causes of Global Warming?

Ans: The causes of global warming are:

- i) Deforestation
- ii) Burning of fossil fuels
- iii) Biological degradation of organic matter present in sewage which release methane gas.

Q.5. What are the effects of Global Warming?

Ans: The effects of global warming are:

- Increase in the earth's surface temperature
- Melting of glaciers and polar ice caps
- Rise in the sea level which will lead to flooding of low lying and coastal areas

Q. 6. What are the effects of Acid Rain?

Ans: Acid rain is quite corrosive and affects both living and non-living things adversely as stated below:

- ❖ Acid rain slowly erodes the cement, limestone and marble of buildings and corrodes steel and other metals.
- ❖ It destroys vegetation due to acidification of soil and accelerates leaching.
- ❖ It acidifies the water of lakes and ponds and affects the survival of aquatic plants and animals.

Q.7. What are the causes of health problems?

Ans: The toxic air pollutants cause many health problems:

- Oxides of nitrogen and sulphur cause breathing problems, can trigger an asthma attack and can also cause respiratory infection.
- Exposure to high levels of suspended particulate matter and toxic gases causes irritation in eye, nose, throat and lungs. If exposed for a long duration of time, it can lead to respiratory disorders like asthma, bronchitis or even lung cancer.
- Carbon monoxide produced as a result of incomplete combustion of carbonaceous fuels is a poisonous gas and can kill a person in no time. It combines with haemoglobin present in the blood and cuts off the oxygen supply to the cells. This leads to headache, drowsiness, nausea, coma and finally death of the person exposed to high levels of this gas.
- Depletion of the ozone layer allows UV radiation to enter the earth. This is harmful and prolonged exposure to it causes skin cancer and eye problems.

Q.8. How Air Pollution can be prevented?

Ans: As responsible citizens, it is our duty to keep the environment where we live clean.

- i) Use modified automobile engines where complete combustion of fuel takes place. Get exhaust gases checked regularly.
- ii) Use less polluting fuels like unleaded petrol and CNG (Compressed Natural Gas) to keep the air clean.
- iii) Coal based thermal power plants pollute the environment drastically. To reduce this they should.
 - Use coal free from sulphur impurities or use low sulphur containing coal
 - Install long chimneys and make use of electrostatic precipitation to reduce solid particulate matter
- iv) We should use alternative sources of energy like solar energy, hydropower, tidal energy, nuclear energy, etc. instead of fossil fuels to meet our energy requirements.
- v) Planting as many trees as possible in the surroundings helps to clean the air.

Q.9. What are the major sources of water?

Ans: The three major sources of water are:

- i) Surface water obtained from rivers, streams, springs and lakes.
- ii) Ground Water
- iii) Water from the sea and oceans

Q.10. What are the sources of water pollution?

Ans: The sources of water pollution are:

- i) Industrial Wastes
- ii) Synthetic Detergents
- iii) Agricultural run-offs
- iv) Oil leakage
- v) Oxygen demanding bio-waste

Q.11. What are the prevention of water pollution?

Ans: The prevention of water pollution are:

- a) Industrial waste-Wastewater should be treated before being discharged into the water body.
- b) Sewage- Treatment of Sewage water should be done in sewage treatment plants before throwing it into the water.
- c) Fertilizer and Pesticides - Limited use of fertilizers and pesticides can control pollution of water bodies

Q.12. What are the characteristic of potable water?

Ans: The characteristics of potable water are:

- It should be colourless, odourless and transparent
- It should have sufficient amounts of dissolved salts and oxygen in it
- It should be free from harmful chemicals and micro-organisms

Q.13. What are the steps of purification of water in Water Treatment Plant?

Ans: There are three steps of purification of water in Water Treatment Plant are:

- a) Sedimentation
- b) Filtration
- c) Disinfection

Q.14. What are the steps of purification of water at Home?

Ans: The steps of purification of water at Home are:

- i) Boiling and Filtration
- ii) Filtration, Adsorption and Disinfection
- iii) Reverse osmosis
- iv) Chemical Treatment

Q.15. State whether the following statement are True (T) or False (F)

1. Clear and transparent water is always fit to drink - **False**
2. The ozone layer protects us from the harmful effects of ultraviolet radiation of the sun – **True**
3. Incomplete combustion of fuel produces carbon dioxide – **False**
4. Bleaching powder is used for the purification of water – **True**
5. Eutrophication results increased level of dissolved oxygen in the water body – **False**
6. A greenhouse gas traps heat of the sun and do not allow it to escape into the space - **True**

Q.16. Fill in the blanks:

- a) Ozone kills **germs** present in water and enriches it with **oxygen** too.
- b) Increasing concentration of greenhouse gas leads to **global warming**
- c) Acid rain is harmful for **living** and **non-living**
- d) Two poisonous chemicals that contaminate the water are **lead and mercury**
- e) Disinfection of water in municipal water treatment plant is done by **chlorine**.
- f) Gases like **carbon-dioxide** and **methane** are responsible for global warming.

Q.17. Match the two columns:

- | | |
|--------------------------|--|
| 1. Chlorofluorocarbons | i) Disinfection of water |
| 2. Reverse osmosis | ii) Settling of suspended matter at the bottom of the tank |
| 3. Ultraviolet radiation | iii) Filtration through membrane under pressure |
| 4. Eutrophication | iv) Depletion of ozone layer |
| 5. Sedimentation | v) Water safe for drinking |
| 6. Potable water | vi) contamination of water with detergents and fertilizers |

Ans: 1 → iv
2 → iii
3 → i
4 → vi
5 → ii
6 → v

Q.18. Multiple Choice Questions (MCQs): Choose the correct answer for each of the following:

1. The ozone layer is affected by

- | | |
|-----------------------|--------------------|
| a) Carbon monoxide | b) Carbon dioxide |
| c) Chlorofluorocarbon | d) Nitrogen oxides |

Ans: c) Chlorofluorocarbon

2. Global warming is caused by

- | | |
|-----------------------|--------------------|
| a) Carbon dioxide | b) Carbon monoxide |
| c) Chlorofluorocarbon | d) Nitrogen oxides |

Ans: a) Carbon dioxide

3. Disinfection of water can be done by

- | | |
|---------------------|----------------|
| a) Chlorine | b) Ozone |
| c) Ultraviolet rays | d) All of them |

Ans: d) All of them

4. Installation of tall chimneys for the exist of gases in thermal power plants helps in

- a) Reduction of particulate matter in the atmosphere
- b) Reduction of harmful gases in the air we breathe
- c) Both (a) and (b) are correct
- d) none is correct.

Ans: c) Both (a) and (b) are correct

5. Air polluted with acidic oxides affects

- a) Sculptures
- b) Monuments
- c) Crops
- d) All of them

Ans: d) All of them

6. Pollution of air and water affects

- a) Plants, animals and human beings
- b) Plants, animals, human beings and some non-living components
- c) Human being only
- d) Plants and human being

Ans: b) Plants, animals, human beings and some non-living components