

## CBSE Class 11 Chemistry Chapter 14 Environmental Chemistry Worksheet – Set 2 (With Answer)

**Q1.** Acid rain is caused by

- (a) Excess release of carbon monoxide by incomplete combustion
- (b) Excess formation of carbon dioxide by combustion and respiration
- (c) Excess production of ammonia by industries
- (d) Excess nitrogen dioxide and sulphur dioxide from burning fossil fuels
- (e) All of the above

**Correct Answer:** (d) Excess nitrogen dioxide and sulphur dioxide from burning fossil fuels

**Q2.** Oxides of sulphur and nitrogen are important pollutants of \_\_\_\_\_.

- (a) Water
- (b) Air
- (c) Soil
- (d) All of the above

**Correct Answer:** (b) Air

**Q3.** Which of the following is the primary source of fossil fuel burning?

- (a) Sulphur dioxide
- (b) Nitrogen dioxide
- (c) Both (a) and (b)
- (d) None of the above

**Correct Answer:** (c) Both (a) and (b)

**Q4.** Which of the following gases is not a greenhouse gas?

- (a) Carbon dioxide
- (b) Carbon monoxide
- (c) Water vapour
- (d) All of the above

**Correct Answer:** (b) Carbon monoxide

**Q5.** Which of the following gases is responsible for the Taj Mahal's deterioration?

- (a) Sulphur dioxide
- (b) Carbon dioxide
- (c) Both (a) and (b)
- (d) None of the above

**Correct Answer:** (a) Sulphur dioxide

**Q6.** Which of the following is the primary precursor of photochemical smog?

- (a) Nitrogen dioxide
- (b) Carbon dioxide
- (c) Peroxyacetyl nitrate
- (d) All of the above

**Correct Answer:** (a) Nitrogen dioxide

**Q7.** Which of the following is the main culprit of the depletion of the protective ozone layer?

- (a) Oxides of sulphur
- (b) Particulate matter
- (c) Chloro fluoro carbons (CFCs)
- (d) All of the above

**Correct Answer:** (c) Chloro fluoro carbons (CFCs)

**Q8.** It is not advised to sleep in a closed room with a coke fire burning inside on a cold day because of the harmful effects of \_\_\_\_\_.

- (a) Carbon monoxide
- (b) Carbon particulates
- (c) Sulphur dioxide present as an impurity in a coke fire
- (d) All of the above

**Correct Answer:** (a) Carbon monoxide

**Q9.** Why does fish not grow as well in warm water as in cold water?

**Answer:** The amount of dissolved oxygen in warm water is less than in cold water, so fish do not grow as well in warm water as in cold water.

**Q10.** What do the abbreviation BOD and COD stand for?

**Answer:** The abbreviation BOD stands for biological oxygen demand, whereas COD stands for chemical oxygen demand.

**Q11.** What is herbicide? Give one example.

**Answer:** Herbicides are pesticides specially meant for killing weeds. Sodium chlorate ( $\text{NaClO}_3$ ) and sodium arsenite ( $\text{Na}_3\text{AsO}_3$ ) are some examples of herbicides.

**Q12.** List some vital sources of ozone layer depletion.

**Answer:** The main cause of ozone depletion and the ozone hole is simulated chemicals, manufactured halocarbon refrigerants, solvents, propellants, and foam-blowing agents (chlorofluorocarbons (CFCs), HCFCs, halons).

**Q13.** Name the gas that caused the Bhopal gas tragedy.

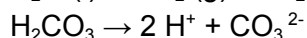
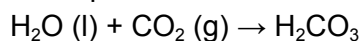
**Answer:** Methyl isocyanate gas is responsible for the Bhopal gas tragedy.

**Q14.** What do you understand by the term pneumoconiosis? How does it transpire?

**Answer:** Pneumoconiosis is a disease of the lung which is caused due to inhalation of small particles (mist, smoke, fumes and dust). These particles irritate the lungs, and exposure to such particles for long periods causes scarring or fibrosis of the lung lining.

**Q15.** Why does rainwater normally have a pH of about 5.6? When does it become acid rain?

**Answer:** Normally, rainwater has a pH of about 5.6 due to the dissolution of carbon dioxide in the atmosphere into it.



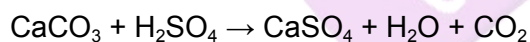
If the pH of rainwater is more than 5.6, it becomes acid rain.

**Q16.** How can domestic waste be used as manure?

**Answer:** Depending upon the nature of the waste, we can segregate domestic waste into two categories, i.e. biodegradable and non-biodegradable. We should deposit biodegradable waste, such as leaves, rotten food, etc., in landfills, where they decompose aerobically and anaerobically into manure. Non-biodegradable waste (which cannot be degraded), such as plastic, glass, metal scraps etc., should be sent for recycling.

**Q17.** Statues and monuments in India are affected by acid rain. Justify the statement.

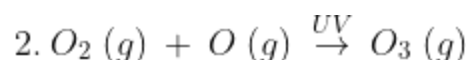
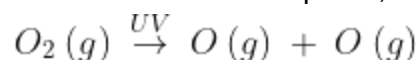
**Answer:** The air around statues and monuments in India contains fairly high concentrations of oxides of sulphur and nitrogen. It is mainly because of the large number of industries and power plants in the nearby areas. The presence of these oxides causes acid rain. This acid rain causes extensive damage to statues and monuments because lime water reacts with rainwater and gets damaged.



As a result, these monuments are slowly eaten away, and the marble gets discoloured and lustreless.

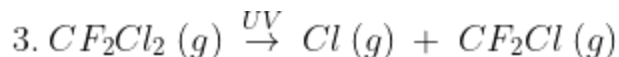
**Q18.** What are the reactions involved in ozone layer depletion in the stratosphere? What are its consequences?

**Answer:** In the stratosphere, ozone is a product of the action of UV radiation on dioxygen as

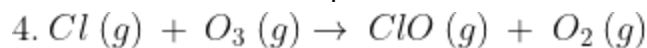


Reaction 2 indicates the dynamic equilibrium between the production and decomposition of ozone molecules. Any factor that disturbs the equilibrium may cause the depletion of the ozone layer by its decomposition.

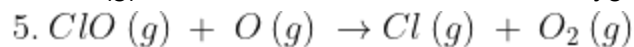
One such factor is the release of chlorofluorocarbon compounds (CFCs). These are non-reactive, non-flammable molecules used in refrigerators, air conditioners, plastics, and electronic industries. Once released, CFCs mix with atmospheric gases and reach the stratosphere, where they are decomposed by ultraviolet radiation.



The chlorine free radical produced in reaction 3 reacts with ozone as



The Cl (g) radical further react with atomic oxygen to produce more chlorine radicals as



The regeneration of Cl (g) causes a continuous breakdown of ozone present in the stratosphere, damaging the ozone layer.

**Q19.** How will you differentiate between classical smog and photochemical smog?

**Answer:** We can differentiate between classical and photochemical smog in the following ways.

Sl. No.	Classical Smog	Photochemical Smog
1.	It is formed due to the buildup of sulphur oxides and particulate matter from fuel combustion.	It is formed due to the photochemical reaction of sunlight on the nitrogen oxides and hydrocarbons produced by automobiles and factories.
2.	It involves smoke and fog.	It does not involve any smoke or fog.
3.	It occurs in a cool, humid climate (in winter).	It occurs in warm, dry and sunny climates (in summer).
4.	This type of smog was first observed in London in 1952.	This type of smog was first observed in Los Angeles in 1950.
5.	It has a high concentration of sulphur dioxide and, therefore, is reducing in character.	It has a high concentration of oxidising agents and, therefore, is oxidising in character.
6.	It causes bronchitis and irritation, i.e. problems in the lungs.	It causes irritation in the eyes.

**Q20.** Give a brief account of green chemistry.

**Answer:** Green chemistry is the design of chemical products and processes that reduce or eliminate the use or generation of hazardous substances. It applies across the life cycle of a chemical product, including its design, manufacture, use, and ultimate disposal.