CBSE Class 11 Chemistry Chapter 14 Environmental Chemistry Worksheet – Set 1 (with Answer)

Q1. Which of the following is a major air pollutant?
(a) Carbon monoxide
(b) Oxides of nitrogen
(c) Oxides of sulphur
(d) All of the above
Correct Answer: (a) Carbon monoxide

Q2. Which of the following is closest to the earth's surface?
(a) Mesosphere
(b) Stratosphere
(c) Troposphere
(d) None of the above
Correct Answer: (c) Troposphere

Q3. Which of the following is the major source of carbon monoxide pollution?
(a) Vehicular exhaust
(b) Industrial processes
(c) Forest fire
(d) All of the above
Correct Answer: (a) Vehicular exhaust

Q4. Increased concentration of carbon dioxide in the atmosphere is responsible for _____.
(a) Greenhouse effect
(b) Lack of photosynthesis
(c) Death of aquatic animals
(d) All of the above
Correct Answer: (a) Greenhouse effect

Q5. Which of the following is the primary cause of white lung cancer?
(a) Paper
(b) Silica
(c) Textiles
(d) All of the above
Correct Answer: (c) Textiles

Q6. What do you understand by the term environmental chemistry?

Answer: Environmental chemistry is defined as the branch of science that deals with the study of the origin, transport, reactions, effects and fates of chemical species in the environment. It deals with social, economic, biological, physical and chemical interrelations with our surroundings.

Q7. What are the causes of tropospheric pollution?
Answer: Tropospheric pollution occurs because of the presence of undesirable gaseous and solid particles in the air.

Q8. What are the primary pollutants responsible for tropospheric pollution?
Answer: The primary pollutants responsible for tropospheric pollution are mentioned below.
(i) Gaseous air pollutants: The gaseous air pollutants include oxides of sulphur (SO, SO_2), nitrogen (NO, NO_2), carbon (CO, CO_2), hydrogen sulphide (H_2S), hydrocarbons, ozone and other oxidants.
(ii) Particulate pollutants: These pollutants comprise dust, fumes, mist, spray, smoke, etc.

Q9. Why is carbon monoxide more dangerous than carbon dioxide?
Answer: Carbon monoxide is a poisonous gas, and it binds to the blood's haemoglobin more readily (about 200 times) than oxygen to form carboxyhaemoglobin.
$Hb + CO \rightleftharpoons HbCO$ (Carboxyhaemoglobin)
The presence of carbon monoxide reduces the amount of haemoglobin available in the blood to transport oxygen to the body cells. The harmful effects of inhaling increasing amounts of carbon monoxide include a reduction in awareness of judgement, dizziness, weak eyesight, headache, nervousness and cardiovascular disorders. At higher concentrations of carbon monoxide, suffocation, loss of consciousness or even death may occur. However, carbon dioxide does not combine with haemoglobin and is a less harmful pollutant. Carbon dioxide is the main contributor towards the greenhouse effect and global warming.

Q10. Name some greenhouse gases.
Answer: Carbon dioxide is the primary gas which causes the greenhouse effect. Other greenhouse gases are methane, ozone, water vapour, nitrous oxide and chlorofluorocarbons (CFCs).

Q11. What is the impact of acid rain on statues and monuments?
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.
$CaCO_3 + H_2SO_4 \rightarrow CaSO_4 + H_2O + CO_2$
As a result, these monuments are slowly eaten away, and the marble gets discoloured and lustreless.

Q12. What is pneumoconiosis? How does it occur?

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 of time causes scarring or fibrosis of the lung lining.

Q13. What do you understand by the term eutrophication?
Answer: The process of nutrient enrichment of water bodies and subsequent loss of biodiversity is called eutrophication.

Q14. What is the primary cause of ozone layer destruction?
Answer: The major cause of ozone layer destruction is the release of chlorofluorocarbon compounds (CFCs), also known as freons, in the atmosphere.

Q15. What is the importance of measuring the BOD of a water body?
Answer: BOD is the abbreviation of biological oxygen demand. It measures the pollution caused by biodegradable organic material in a water body. The clean water would have a BOD value of less than five ppm, whereas higher values of BOD indicate polluted water.

Q16. List the main differences between classical smog and photochemical smog.
Answer: The main difference between classical and photochemical smog is as follows.

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.

Q17. Name the gas responsible for the Bhopal gas tragedy.

Answer: Methyl isocyanate gas was responsible for the Bhopal gas tragedy.

Q18. Which of the following particulates is most toxic?
(a) Fly ash
(b) Soot
(c) Inorganic compound
(d) None of the above
Correct Answer: (b) Soot

Q19. Which of the following is a greenhouse gas?
(a) Methane
(b) Nitrogen
(c) Carbon monoxide
(d) All of the above
Correct Answer: (a) Methane

Q20. Which of the following is caused by the depletion of the ozone layer?
(a) Blood cancer
(b) Breast cancer
(c) Skin cancer
(d) All of the above
Correct Answer: (c) Skin cancer