

Fundamental Concepts in Pollution Science

Pollution Science · Answer Key · 12 Questions

1. Which of the following is a primary air pollutant commonly produced by the combustion of fossil fuels in vehicles and power plants?

- A) Ozone (O₃)
- B) Particulate Matter (PM)
- C) Carbon Dioxide (CO₂)
- D) Sulfur Dioxide (SO₂)**

2. Acid rain, which damages forests and aquatic ecosystems, is primarily caused by emissions of which two gases?

- A) Nitrogen oxides and volatile organic compounds
- B) Carbon monoxide and methane
- C) Sulfur dioxide and nitrogen oxides**
- D) Ozone and particulate matter

3. What is the major source of microplastic pollution in the oceans?

- A) Volcanic eruptions
- B) Degradation of larger plastic items**
- C) Industrial chemical spills
- D) Natural oceanic currents

4. Eutrophication, a process that leads to algal blooms and oxygen depletion in water bodies, is most often caused by excess input of which nutrient?

- A) Potassium
- B) Nitrogen and Phosphorus**
- C) Calcium
- D) Iron

5. Which greenhouse gas is considered the most significant contributor to human-caused global warming due to its abundance and persistence in the atmosphere?

- A) Methane (CH₄)
- B) Nitrous Oxide (N₂O)
- C) Carbon Dioxide (CO₂)**
- D) Water Vapor (H₂O)

6. Persistent Organic Pollutants (POPs) are a group of chemicals that remain intact in the environment for long periods. Which is a characteristic of POPs?

- A) They are easily broken down by sunlight
- B) They bioaccumulate in fatty tissues**
- C) They are highly soluble in water
- D) They are quickly eliminated from the body

7. Lead, a toxic heavy metal, can contaminate soil and water. What is a common historical source of lead pollution?

- A) Fertilizer runoff
- B) Lead-based paints and leaded gasoline**
- C) Sewage treatment plants
- D) Natural mineral deposits

8. Smog, a type of air pollution, is often a combination of smoke and fog. The brownish haze in urban smog is largely due to the presence of:

- A) Sulfur dioxide
- B) Carbon monoxide
- C) Ground-level ozone and particulate matter**
- D) Methane

9. Which industrial process is a significant source of mercury pollution, particularly in aquatic environments?

- A) Textile dyeing
- B) Coal combustion and artisanal gold mining**
- C) Paper production
- D) Cement manufacturing

10. The 'Greenhouse Effect' is a natural process, but human activities are enhancing it. What is the primary mechanism by which greenhouse gases contribute to warming?

- A) They reflect solar radiation back into space
- B) They absorb and re-emit infrared radiation**
- C) They directly increase the Sun's output
- D) They create holes in the ozone layer

11. Noise pollution can have detrimental effects on human health and wildlife. What is a significant source of anthropogenic noise pollution?

- A) Wind rustling through leaves
- B) Birdsong
- C) Traffic and industrial machinery**
- D) Ocean waves crashing

12. What is a primary characteristic of thermal pollution in aquatic ecosystems?

A) A decrease in dissolved oxygen levels

B) An increase in water clarity

C) A decrease in water temperature

D) An increase in biodiversity