

Core Concepts: Burning fossil fuels releases various atmospheric pollutants. Key pollutants include carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen oxides (NO_x), and particulates. These pollutants have significant environmental and health impacts, such as acid rain, global dimming, respiratory problems, and toxicity. Catalytic converters are used to reduce harmful emissions from vehicles.

Section A: Key Terms & Concepts

1. Match each atmospheric pollutant to its primary environmental or health effect. Draw a line connecting them.

Pollutant	Effect
Carbon monoxide	Acid rain
Sulfur dioxide	Global dimming
Nitrogen oxides	Respiratory problems
Particulates	Toxic gas

2. Complete the sentences below using the most appropriate scientific terms.

- a) The incomplete combustion of fossil fuels, especially in car engines, can produce _____, a highly toxic gas.
- b) _____ is primarily formed from sulfur impurities in fossil fuels reacting with oxygen during combustion.
- c) Both sulfur dioxide and _____ dissolve in rainwater to form acid rain.
- d) Tiny solid particles released into the atmosphere, known as _____, can cause global dimming and respiratory problems.

Section B: Core Concepts & Explanations

3. Explain how carbon monoxide is formed and why it is dangerous to humans.

4. Describe the formation of sulfur dioxide and nitrogen oxides during the combustion of fossil fuels.

5. Explain the process of acid rain formation and list two negative environmental impacts it causes.

6. Discuss the function of a catalytic converter in a car and name the main types of pollutants it reduces.

Section C: Exam Application & Extended Writing

7. The diagram below shows a simplified representation of a car engine's exhaust system.

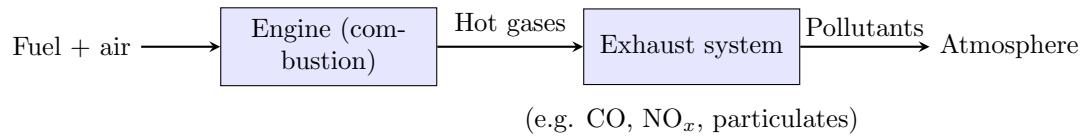


Figure 1: Simplified car exhaust system

- a) Identify two different atmospheric pollutants that are typically produced by a car engine and explain how one of them is formed.

8. Explain the causes and effects of both global dimming and global warming, clearly distinguishing between the two phenomena. (6 marks)
