

7.4 Atmospheric CO2 and Particulates

Name: _____ Class: _____ Date: _____ **Total: 10 marks**

KEY WORDS particulate matter

Objective

Build the skills to answer exam questions on **atmospheric CO₂ and particulates**.

You must be able to:

- explain rising **CO₂** and its climate link
- describe **particulate matter (PM)** and its health effects
- distinguish their different impacts

1 Key knowledge and worked examples

Study these first. Each one shows the method for a question type used later – follow the steps and you can do the Practice and Exam-style questions yourself.

■ Rising CO₂

Burning fossil fuels raises atmospheric **CO₂**, a **greenhouse gas** that traps heat and drives climate change. CO₂ is not directly toxic to breathe at these levels but is a major climate concern.

■ Particulate matter

Particulate matter (PM) is tiny solid/liquid particles (soot, dust). **PM_{2.5}** (very fine) is most dangerous – it lodges deep in the lungs, causing respiratory and heart disease.

■ Different impacts

- CO₂ → mainly a **climate** problem (global).
- PM → mainly a **health** problem (local air quality).

■ A worked distinction

A diesel truck emits both CO₂ (adding to climate change) and PM (harming the lungs of nearby people) – two different kinds of impact.

2 Practice

Now apply the methods above.

2.1 Why is rising CO₂ a concern? [1]

2.2 What is particulate matter? [1]

2.3 Which is mainly a health problem: CO₂ or PM? [1]

3 Exam-style questions

3.1 The most dangerous particulate matter for health is [1]

- ☐ **A** large dust only
B fine PM_{2.5} that lodges deep in the lungs
C carbon dioxide
D oxygen

3.2 A city has high levels of both CO₂ and PM_{2.5}.

(a) State the main impact of each. [2]

(b) Explain why PM_{2.5} is especially harmful to health. [2]

3.3 Explain why CO₂ is described as a global problem while PM is more local. [2]