

5.12 Introduction to Sustainability

Name: _____ Class: _____ Date: _____

Total: 10 marks

KEY WORDS renewable 可再生 • sustainable yield 可持续产量 • nonrenewable 不可再生 • sustainability 可持续性

Objective

Build the skills to answer exam questions on **sustainability**.

You must be able to:

- define **sustainability** 可持续性
- distinguish **renewable** 可再生 and **nonrenewable** 不可再生 resources
- explain **sustainable yield** 可持续产量

1 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.

■ Sustainability

Sustainability means meeting present needs **without** reducing the ability of future generations to meet theirs — living within the planet's limits.

■ Renewable vs nonrenewable

- **Renewable** — replenished naturally on a human timescale (sunlight, wind, trees if replanted).
- **Nonrenewable** — finite, formed over millions of years (fossil fuels, minerals).

■ Sustainable yield

The **sustainable yield** is the amount that can be harvested **without** depleting the resource — e.g. catching only as many fish as are replaced by reproduction.

■ A worked idea

Harvesting trees no faster than they regrow keeps the forest productive indefinitely — a sustainable yield.

2 Practice

Now apply the methods above.

2.1 Define sustainability. [1]

2.2 Classify each: (a) coal, (b) wind. [2]

2.3 What is a sustainable yield? [1]

3 Exam-style questions

3.1 A nonrenewable resource is one that [1]

- **A** is replenished quickly
 - **B** takes millions of years to form
 - **C** never runs out
 - **D** is only sunlight
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3.2 A forest is harvested for timber.

(a) Explain what “sustainable yield” means for this forest. [2]

(b) State what happens if harvest exceeds the sustainable yield. [1]

3.3 Explain why fossil fuels are considered nonrenewable even though they form naturally. [2]

Solutions

2.1 Meeting present needs without reducing future generations' ability to meet theirs.

2.2 (a) nonrenewable; (b) renewable.

2.3 The amount that can be harvested without depleting the resource.

3.1 B — takes millions of years to form.

3.2 (a) Harvesting trees no faster than they regrow, so the forest stays productive indefinitely. (b) The forest is depleted (declines/degraded).

3.3 They form over millions of years — far slower than we use them — so on a human timescale they cannot be replenished and are effectively finite.