AP ENVIRONMENTAL SCIENCE • EXERCISE SHEET

5.17 Sustainable Forestry

Name: _____ Class: _____ Date: _____ **Total: 9 marks**

KEY WORDS selective cutting 择伐 • clearcutting 皆伐 • erosion 侵蚀

Objective

Build the skills to answer exam questions on **sustainable forestry**.

You must be able to:

- describe sustainable practices (**selective cutting** 择伐, replanting, rotation)
- explain how they maintain forest function
- contrast with clearcutting

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.

■ Sustainable forestry

Sustainable forestry harvests timber while keeping the forest healthy and productive for the future:

- **Selective cutting** — remove only some trees, leaving the forest largely intact.
- **Replanting** — replace harvested trees.
- **Rotation** — harvest no faster than the forest regrows (sustainable yield).

■ Keeping forest function

Leaving trees standing maintains **habitat**, **soil stability**, **carbon storage**, and the **water cycle**, unlike clearcutting.

■ Certification

Certification programs label sustainably-harvested wood so consumers can support responsible forestry.

■ A worked contrast

Selective cutting keeps the forest canopy and roots, so it avoids the erosion, habitat loss, and flooding caused by clearcutting.

2 Practice

Now apply the methods above.

2.1 Name one sustainable forestry practice. [1]

2.2 Why is replanting important? [1]

2.3 How does selective cutting protect soil? [1]

3 Exam-style questions

3.1 Sustainable forestry harvests trees [1]

- **A** faster than they regrow
- **B** no faster than they regrow
- **C** only by clearcutting
- **D** never

3.2 A company switches from clearcutting to selective cutting and replanting.

(a) Explain two environmental benefits. [2]

(b) State one disadvantage compared with clearcutting. [1]

3.3 Explain how sustainable forestry maintains a forest's carbon storage. [2]

Solutions

2.1 Any one: selective cutting, replanting, rotation (sustainable yield).

2.2 It replaces harvested trees so the forest regrows and stays productive.

2.3 It leaves most trees (and roots) in place to hold the soil.

3.1 B — no faster than they regrow.

3.2 (a) Any two: less erosion, maintained habitat, kept carbon storage, protected water cycle. (b) It is slower and more expensive, yielding less timber at once.

3.3 By keeping most trees standing and replanting harvested ones, the forest continues to absorb and store CO_2, rather than releasing it as a clearcut would.