

Adaptations, interdependence and competition: practice questions

5 questions • 13 marks • mark scheme at the back

For AQA GCSE Biology 8461 and Combined Science: Trilogy 8464. **Triple only** is not in Combined Science. **Higher tier** is only on the Higher paper.

Name

Total / 13

1 Which list shows the levels of organisation in an ecosystem from smallest to largest? [1 mark]

- A. ☐ Organism, population, community, ecosystem
- B. ☐ Population, organism, community, ecosystem
- C. ☐ Organism, community, population, ecosystem
- D. ☐ Ecosystem, community, population, organism

2 Bluebells grow on the floor of a woodland under tall oak trees. Suggest two factors that the bluebells and the oak trees compete for. [2 marks]

3 The table shows the number of plants of one species per m² in soils of different pH. (a) [3 marks]
State the soil pH at which the plant is most abundant. (1) (b) Describe how the number of plants changes as the soil pH increases. (2)

Number of plants per m ² at different soil pH					
Soil pH	4	5	6	7	8
Number of plants per m ²	2	14	40	38	9

- 4** A lake contains small fish that feed on insect larvae. A new predatory fish species arrives **[4 marks]**
in the lake. It eats only the small fish. (a) Explain how this could affect the population of
small fish. (2) (b) Explain how this could affect the population of insect larvae. (2)

- 5** Polar bears live in the Arctic. (a) A polar bear has a thick layer of fat under its skin. **[3 marks]**
Suggest how this is an adaptation to its environment. (1) (b) A polar bear has white fur.
Suggest how this is an adaptation. (1) (c) Bacteria that live in deep sea vents are adapted to
very extreme conditions. Name the term for organisms like this. (1)

Mark scheme

One mark for each point unless a maximum is given. Words in brackets are not needed for the mark.

1. [1]

A A (1)

2. [2]

- any two from:
- light (1)
- water (1)
- mineral ions (1) allow nutrients from the soil
- space (1)
- Max 2

3. [3]

- (a) pH 6 (1)
- (b) number increases from pH 4 to pH 6 (1)
- then decreases from pH 6 to pH 8 (1)
- allow correct data quotes, for example rises from 2 to 40 plants per m², in place of one (b) mark

4. [4]

- (a) small fish are eaten / preyed on (1)
- so their numbers decrease (1)
- (b) fewer small fish to eat the larvae (1)
- so the numbers of larvae increase (1)

5. [3]

- (a) insulation / reduces heat loss in the cold (1)
- (b) camouflage in the snow, so it can get close to its prey without being seen (1) allow to hide from prey
- (c) extremophiles (1)