

Human impacts, biodiversity and food security: practice questions

5 questions • 17 marks • mark scheme at the back

For Edexcel GCSE Biology 1BI0 and Combined Science 1SC0. **Triple only** is not in Combined Science. **Higher tier** is only on the Higher paper.

Name

Total / 17

1 Which is a negative effect of introducing a non-indigenous species to an area? [1 mark]

- A. ☐ It increases the number of native species
- B. ☐ It competes with native species so their numbers fall
- C. ☐ It always provides food for native species
- D. ☐ It increases biodiversity

2 Fertiliser from a farm runs into a lake and the fish die. Explain how the fertiliser causes the fish to die. [4 marks]

3 Explain how reforestation can benefit the environment. [3 marks]

4 **Triple only** [3 marks]

Describe three biological factors that can reduce food security.

5 Evaluate the positive and negative impacts of fish farming on biodiversity. **[6 marks]**

[6 marks]

[illegible]

Mark scheme

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

1. [1]

B it competes with native species so their numbers fall (1)

2. [4]

- fertiliser increases the nitrates in the water so algae grow rapidly / algal bloom (1)
- the algae block light so plants / algae below cannot photosynthesise and die (1)
- bacteria / decomposers feed on the dead material and increase in number, using up oxygen (1)
- fish die because there is not enough oxygen (1)

3. [3]

- restores habitats so biodiversity increases (1)
- trees absorb carbon dioxide by photosynthesis, reducing carbon dioxide in the atmosphere (1)
- tree roots hold soil so there is less soil erosion / flooding (1)

4. [3] **Triple only**

- increasing human population needs more food (1)
- increasing animal farming / meat and fish consumption needs more land and resources because energy is lost between trophic levels (1)
- new pests and pathogens destroy crops / animals (1)
- environmental change caused by human activity reduces yields (1)
- sustainability issues such as land used for biofuels, or the cost of fertilisers, pesticides and feed (1)
- Max 3

5. [6]

Level 3 5-6	A balanced evaluation that gives several correct positive and negative impacts with explanations, and reaches a justified judgement. Scientific terms are used correctly.
Level 2 3-4	Some positive and some negative impacts are given with some explanation, but the answer may be unbalanced or have no clear judgement.
Level 1 1-2	One or two simple points are made, without explanation or balance.

Indicative content

- positive: provides a food supply for a growing population
- positive: reduces overfishing so wild fish stocks and the species that feed on them are protected
- negative: waste and uneaten food pollute water and can cause eutrophication, so oxygen falls and organisms die
- negative: disease and parasites can spread from farmed fish to wild fish
- negative: escaped fish can compete or interbreed with wild fish, reducing genetic variety
- negative: fish may be fed on wild fish, and chemicals used can harm other organisms
- judgement: benefits depend on how well the farm is managed, for example controlling waste and preventing escapes