B3.2 Mastery Quiz: Human Interaction

Section A

1. Choose the best definition of biodiversity. [1]

   Tick (✓) **one** box.

   A. The number of organisms in an ecosystem ☐

   B. The interaction of organisms with the non-living parts of their environment ☐

   C. The variety of different species in an ecosystem ☐

2. Choose the option that would increase biodiversity. [1]

   Tick (✓) **one** box.

   A. Selective breeding programmes ☐

   B. Using peat from peat bogs as compost ☐

   C. Maintaining nature reserves ☐

3. Choose the option that is a cause of global warming. [1]

   Tick (✓) **one** box.

   A. Deforestation ☐

   B. Extreme weather patterns ☐

   C. Habitat loss ☐

4. Choose which is a type of air pollution. [1]

Tick (✔) **one** box.

A. Fertilisers that leach into waterways ☐

B. Smoke from burning peat ☐

C. Rubbish in landfill waste sites ☐

5. A group of students wanted to investigate the distance from a water source affected the growth of daisies in a field.

Choose the best method to use. [1]

Tick (✔) **one** box.

A. Place a quadrat at regular intervals along a transect from a water source and count the number of daisies ☐

B. Use coordinates of the field area for placing the quadrat randomly and calculate total number of daisies ☐

C. Do systematic sampling by placing the quadrat at random places near the water source ☐

6. Ecologists regularly measure the biodiversity in peat bogs.

This is important because... [1]

Tick (✔) **one** box.

A. peat bogs are a source of peat for compost which is used in gardening. ☐

B. data from measurements provide evidence for claims about changes in biodiversity. ☐

C. ecologists can calculate the mean biodiversity using the measurements. ☐

7. Two students, Ali and Ben, used different methods to measure the total number of dandelions in a 100 m² field.

Both used a 1 m² quadrat.

Their results tables are shown below.

Ali	
Reading	**Number of dandelions**
1	3
2	5
3	4
Mean	**4**

Total number = mean number x area
Total number = 4 x 100
Total number = 400

Ben	
Reading	**Number of dandelions**
1	3
2	4
3	4
4	6
5	2
6	7
Total number	**26**

Choose which student's data is most representative. [1]

Tick (✓) **one** box.

A. Ali ☐

B. Ben ☐

C. Need more information to decide which is most representative ☐

8. Biodiversity is so important to future human survival because it ensures that... [1]

Tick (✓) **one** box.

A. natural resources are not depleted. ☐

B. humans can access a balanced diet. ☐

C. humans are not dependent on one food source. ☐

9. Choose an example of an indicator species. [1]

Tick (✓) **one** box.

A. A species that is known to survive in high levels of a type of pollution ☐

B. A species that cannot survive in high levels of a type of pollution ☐

C. Both A and B ☐

10. There can be problems when a non-indigenous species is accidentally introduced to an area because... [1]

Tick (✓) **one** box.

A. the non-indigenous species may increase biodiversity. ☐

B. the non-indigenous species may be a predator of indigenous species. ☐

C. the non-indigenous species may not be able to compete with the indigenous species. ☐

BIOLOGY ONLY

11. Choose the factor **least** likely to threaten food security. [1]

Tick (✓) **one** box.

A. Increasing birth rate ☐

B. Increased use of genetically modified (GM) crops ☐

C. Extreme weather patterns ☐

12. Choose the correct statement about the approximate biomass transfer efficiency between trophic levels. [1]

Tick (✓) **one** box.

A. 10% of biomass is passed onto the next trophic level, the rest is lost as waste and through life processes ☐

B. 10% of biomass is lost as waste and through life processes, the rest is transferred to the next trophic level ☐

C. The percentage efficiency is different for each food chain so cannot be approximated ☐

13. Intensive farming of animals can increase food security.

However, there are ethical arguments against intensive farming.

Choose an ethical implication of intensive farming.   [1]

Tick (✔) **one** box.
A. Animals will feel stressed being kept in small cages ☐

B. Antibiotic drugs are expensive ☐

C. Animals can be easily transported ☐

14. Fish populations around the UK are declining.

Choose which action would increase food security of fish.   [1]

Tick (✔) **one** box.

A. Increase the number of people fishing ☐

B. Have a minimum number of fish per catch quota ☐

C. Increase the size of holes in nets so some fish escape ☐

15. Battery hens are kept in very small cages by a farmer.

The farmer does this to increase the efficiency of food production because...   [1]

Tick (✓) **one** box.

A. more hens can live on the farm. ☐

B. it stops them from moving too much and wasting energy. ☐

C. it is easier to feed them and give antibiotics. ☐

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Section B

1. State the function of a quadrat.

   _____

2. Describe one way in which humans decrease biodiversity.

   _____
   _____

3. Explain why global atmospheric temperature must be measured regularly.

   _____
   _____

4. Tempeh, tofu and Quorn are high protein, meat-alternatives.

   The table below compares the protein content and the carbon footprint of these foods.

Carbon footprint is how much carbon dioxide is produced per year, per kg, of product.

	Food product			
	Tempeh	**Tofu**	**Quorn**	**Beef**
Food source	Soybean plant and rhizopus a fungus	Soybean plant	Mycoprotein fungus	Cow farming
Land use (m² / kg)	No data available	4	5	325
Carbon footprint (kg CO₂ /year/kg food product)	0.7	0.9	0.7	32

Explain why a meat-alternative diet is more sustainable than a meat-based diet.

Use data from the table in your answer.

_____

_____

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