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Level: IGCSE Oxford AQA Biology (9201)
Subject: Biology
Topic: IGCSE AQA Biology
Type: Topic Question

To be used by all students preparing for IGCSE Oxford AQA Biology (9201)
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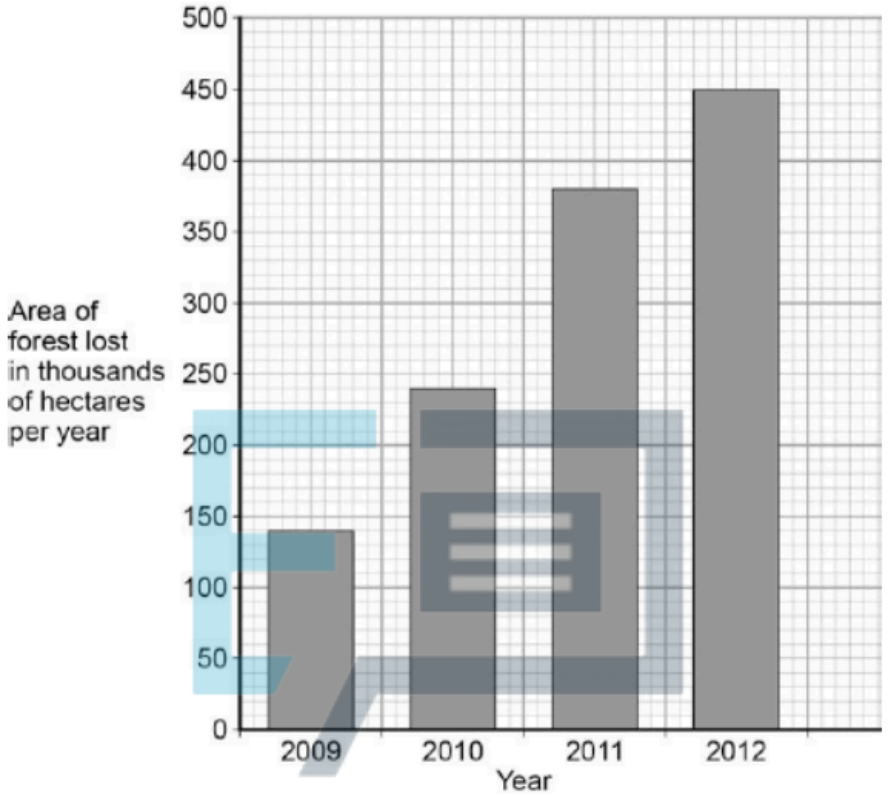
Biology **IGCSE AQA**

Key skills

1. The graph below shows the area of forest lost in Madagascar from 2009 to 2012.



(a) The area of forest lost each year in Madagascar increased between 2009 and 2012.

Determine the total area of forest lost from the start of 2009 to the end of 2012.

_____

_____

Total area of forest lost = _____ thousand hectares

(1)

(b) What are the possible reasons for the change in the area of forest lost per year between 2009 and 2012?

Tick **two** boxes.

- The local people stop growing rice ☐
- Fewer new houses are needed for the population ☐
- The local people decided to farm cattle ☐
- More trees have been planted ☐
- A company starts growing plants for biofuels ☐

(2)

(c) More forest was lost in 2012 than in 2009.

Use words from the box to complete the sentences.

carbon dioxide	**excretion**	**nitrogen**
oxygen	**photosynthesis**	**respiration**

The increase in the area of forest lost has caused an increase in the gas

_____

The increase of this gas has been caused because less of the gas is being absorbed by plants for the process of _____ .

(2)

(d) Deforestation can have negative effects on our ecosystems.

What are the negative effects of deforestation?

Tick **two** boxes.

- Animals and birds migrate because there is less food ☐
- More habitats are destroyed ☐
- There is less acid rain ☐
- There is more biodiversity ☐
- The global temperature decreases ☐

(2)

(e) Scientists try to reduce the negative effects of human activity on our ecosystems.

One way is to protect rare habitats.

Give **one other** way of reducing the negative effects of human activity on our ecosystems.

_____

_____

(1)

(Total 8 marks)

2. Human activity affects ecosystems.

(a) Draw **one** line from each human activity to the effect on ecosystems.

Human activity	Effect on ecosystems
Increase in rice fields	Increases the amount of methane in the atmosphere
Destruction of peat bogs	Increases the amount of carbon dioxide that is released into the atmosphere
	Reduces the rate at which carbon dioxide is locked up as wood

(2)

(b) (i) Deforestation also affects the atmosphere.

Give **two** reasons why deforestation takes place.

1. _____

_____

2. _____

_____

(2)

(ii) Changes in the gases in our atmosphere can cause global warming.

Give **two** possible effects of a rise in the Earth's temperature.

1. _____

_____

2. _____

_____

(2)

(Total 6 marks)

3. The human population is increasing and more household waste is being produced.

(a) Give **one** way in which an increase in household waste affects our environment.

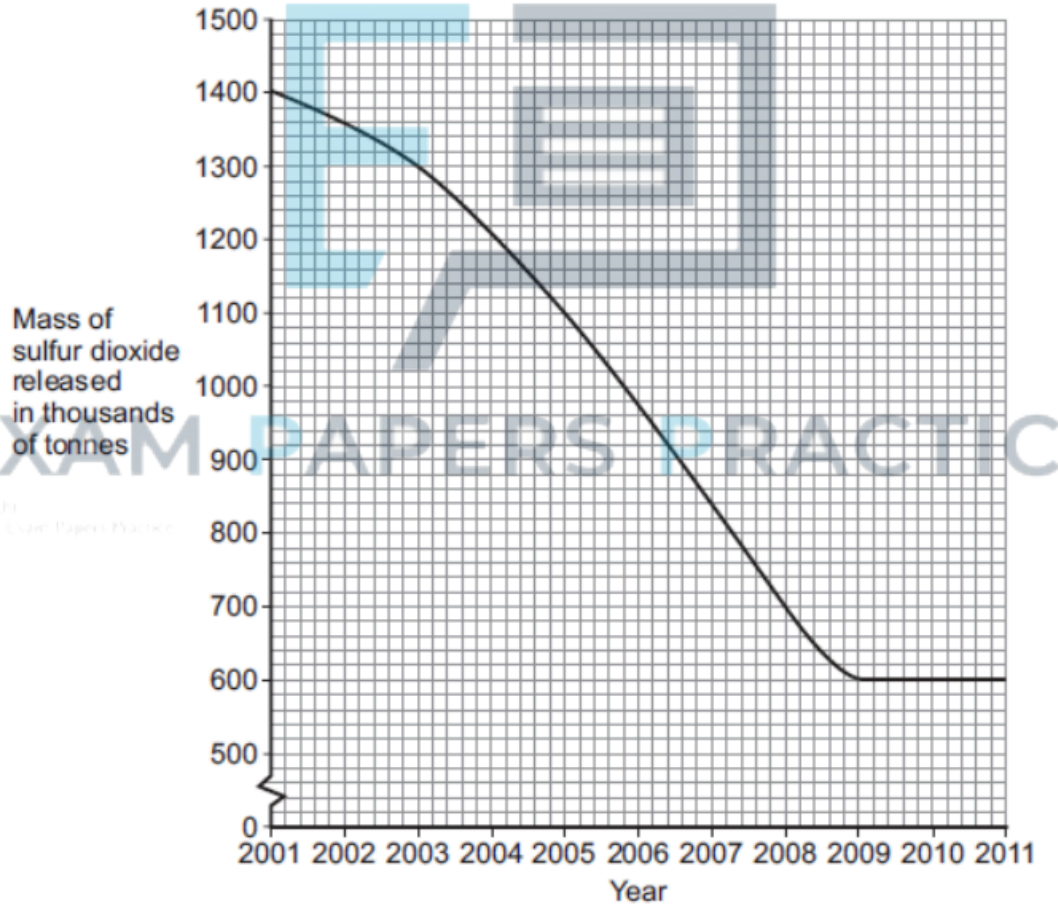
_____

_____

(1)

(b) The release of sulfur dioxide affects our environment.

The graph shows how the mass of sulfur dioxide released in the UK has changed from 2001 to 2011.



(i) Describe the pattern shown in the graph.

_____

_____

_____

_____

(2)

(ii) In 2001, 1400 thousand tonnes of sulfur dioxide were released.

By which year had the amount of sulfur dioxide released reduced to half of this amount?

_____

_____

_____

Year = _____

(2)

(iii) Give one problem caused when sulfur dioxide gas is in the air.

_____

_____

(1)

(c) Carbon dioxide is another gas that affects the environment.

Which two of the following help to reduce the levels of carbon dioxide in the atmosphere by storing carbon dioxide?

Tick (✓) **two** boxes.

Animals respiring	☐
Carbon dioxide being absorbed in oceans and lakes	☐
Photosynthesis by trees	☐
The production of biogas	☐

(2)

(Total 8 marks)

4. Freshwater streams may have different levels of pollution. The level of pollution affects which species of invertebrate will live in the water.

Table 1 shows the biomass of different invertebrate species found in two different streams, **X** and **Y**.

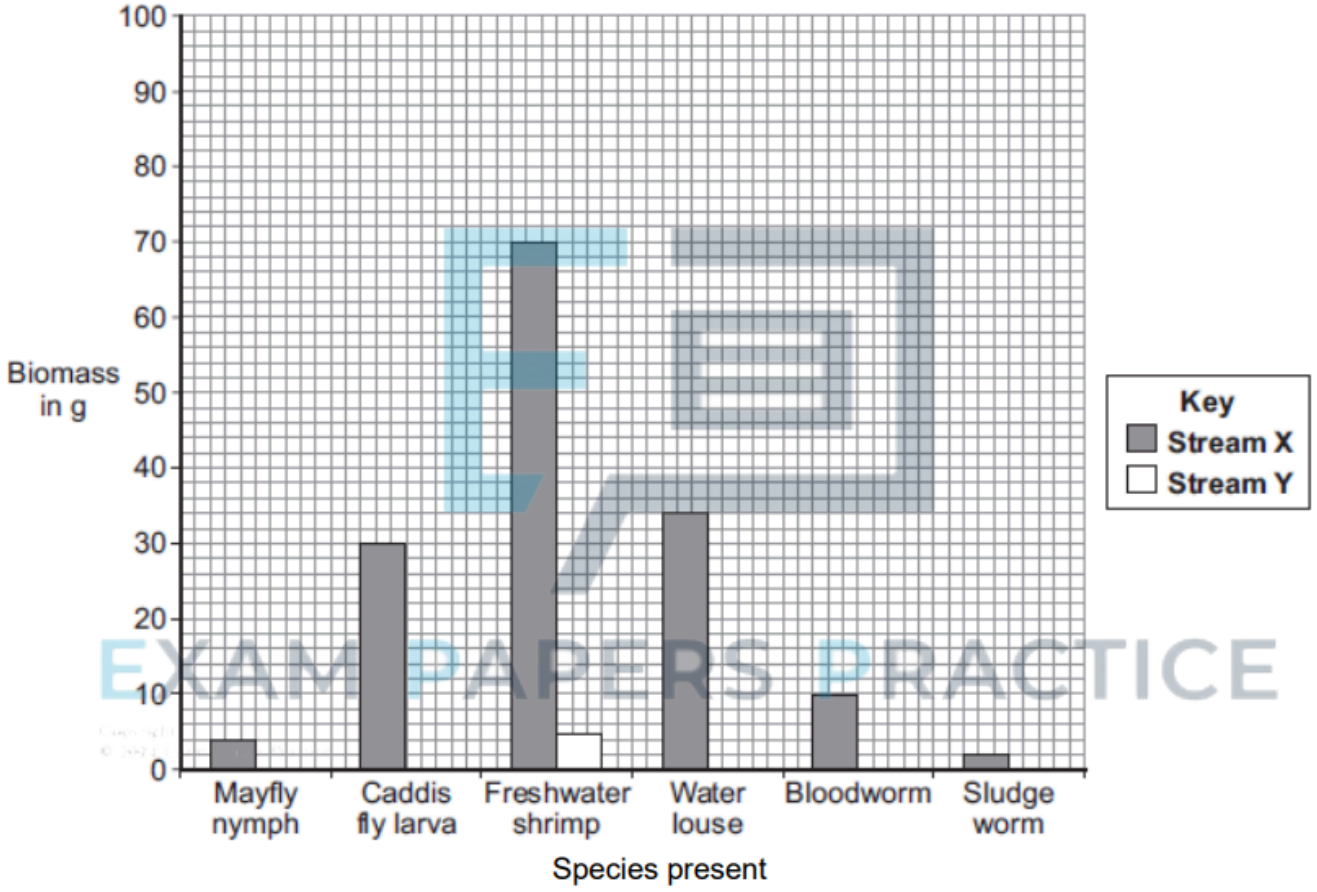
Table 1

	Biomass in g	
Invertebrate species	**Stream X**	**Stream Y**
Mayfly nymph	4	0
Caddis fly larva	30	0
Freshwater shrimp	70	5
Water louse	34	10
Bloodworm	10	45
Sludge worm	2	90
Total	**150**	**150**

(a) The bar chart below shows the biomass of invertebrate species found in **Stream X**.

(i) Complete the bar chart by drawing the bars for water louse, bloodworm and sludge worm in **Stream Y**.

Use the data in **Table 1**.



(2)

(ii) **Table 2** shows which invertebrates can live in different levels of water pollution.

Table 2

Pollution level	Invertebrate species likely to be present
Clean water	Mayfly nymph
Low pollution	Caddis fly larva, Freshwater shrimp
Medium pollution	Water louse, Bloodworm
High pollution	Sludge worm

Which stream, **X** or **Y**, is more polluted?

Use the information from **Table 1** and **Table 2** to justify your answer.

_____

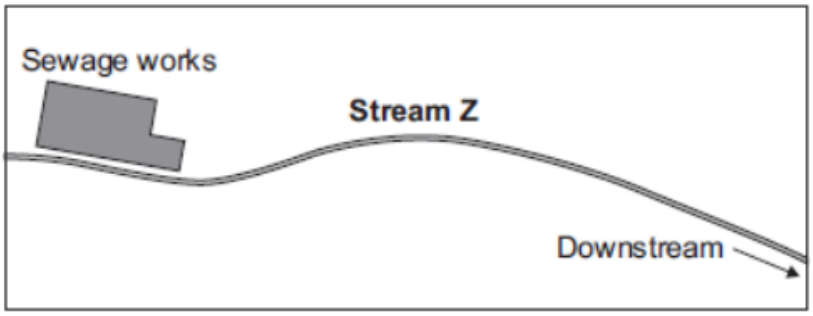
_____

_____

_____

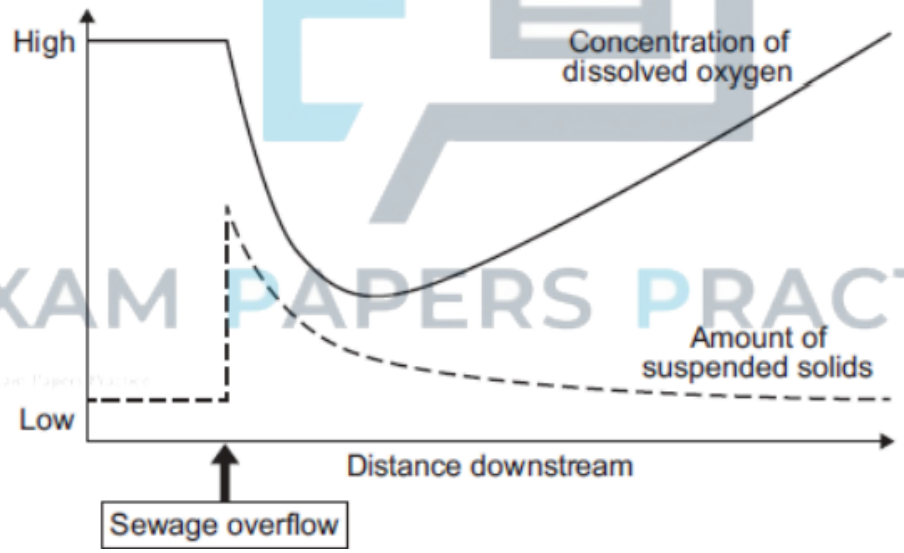
(2)

(b) There is a sewage works near another stream, **Z**.

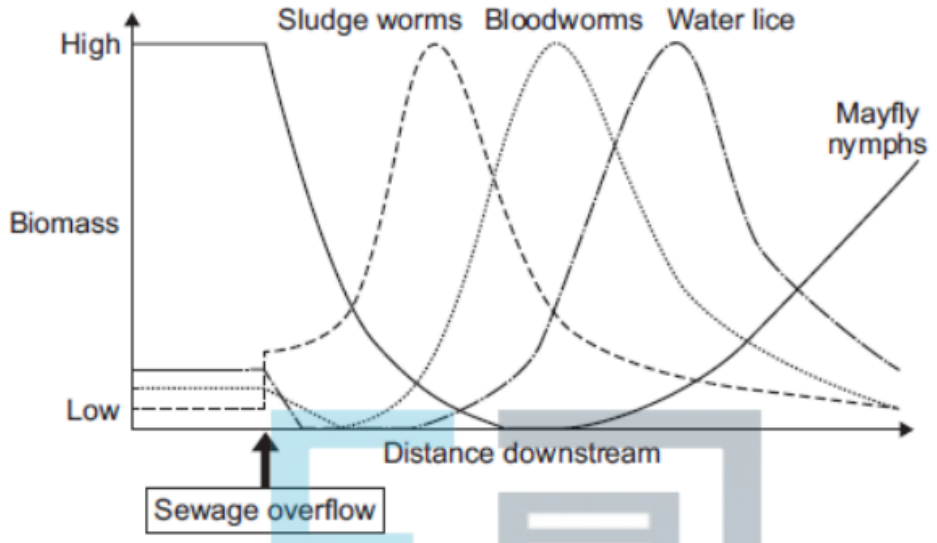


An accident caused sewage to overflow into **Stream Z**.
Two weeks later scientists took samples of water and invertebrates from the stream.
They took samples at different distances downstream from where the sewage overflowed.
The scientists plotted the results shown in **Graphs P** and **Q**.

Graph P: change in water quality downstream of sewage overflow



Graph Q: change in invertebrates found downstream of sewage overflow



(i) Describe the patterns shown in Graph **P**.

(4)

(ii) Describe the relationship between dissolved oxygen and the survival of mayfly nymphs in Stream **Z**. Suggest a reason for the pattern you have described.

_____

_____

_____

_____

_____

(3)

(c) Many microorganisms are present in the sewage overflow.

Explain why microorganisms cause the level of oxygen in the water to decrease.

_____

_____

_____

_____

(2)

(Total 13 marks)

5. (a) Describe **three** ways in which large-scale deforestation in tropical areas has **increased** the concentration of carbon dioxide in the atmosphere.

1. _____

_____

2. _____

_____

3 _____

_____

(3)

(b) Suggest **two** reasons why deforestation also causes a reduction in biodiversity.

_____

_____

_____

_____

(2)

(c) Scientists are thinking of new ways to try to repair the damage done by deforestation.

One way is by carbon sequestration.

(i) What is **carbon sequestration**?

_____

_____

(1)

(ii) Suggest one way in which carbon can be sequestered.

_____

_____

(1)

(Total 7 marks)

6. The number of fish in the oceans is decreasing.

The table below shows information about the mass of fish caught by UK fishermen between 2002 and 2010.

Year	Mass of fish caught by UK fishermen from ALL SOURCES in thousands of tonnes	Mass of fish caught by UK fishermen from SUSTAINABLE SOURCES in thousands of tonnes	Percentage of fish caught from sustainable sources
2002	690.0	427.8	62.0
2004	655.0	396.6	60.5
2006	619.0	386.0	62.4
2008	589.0	436.1	74.0
2010	611.5	465.0	

(a) (i) Calculate the percentage of fish caught from sustainable sources in 2010.

_____

_____

_____

_____ %

(2)

(ii) Describe the pattern in the table above for the mass of fish caught from all sources.

Suggest reasons for this pattern.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

(4)

(iii) Suggest why the percentage of fish caught from sustainable sources is increasing.

_____

_____

(1)

(b) Give two methods of maintaining fish stocks at a sustainable level.

1. _____

2. _____

(2)

(c) The image below shows a fish farm.

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In a fish farm, large numbers of fish are grown in cages in the sea.

Why do fish in the cages grow faster than fish of the same species that are free in the sea?You should refer to energy in your answer.

(4)

(Total 13 marks)