

1. Complete the table by stating the functions of the parts of a plant cell.

part of plant cell	function
cellulose cell wall	
chloroplast	
vacuole	
cell membrane	

(Total 4 marks)

Q1



2. Describe the shape of the DNA molecule.

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(Total 2 marks)

Q2



3. There are different layers in a rainforest. The emergent layer is made up of the tops of trees which grow above the rest of the forest.



The table shows the layers of the rainforest and the percentage of the total sunlight at the top of the forest received by each layer.

layer of rainforest	percentage of the total sunlight received	plant types living in layer
emergent	100	trees more than 35 m high
canopy	99	trees from 25 to 35 m high
understory	15	small trees covered in orchids, mosses and ferns
shrub	3	ferns and small green shrubs
floor	1	a few small green plants

- (a) Suggest **two** reasons why most animals found in the rainforest live in the canopy.

1

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2

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(2)



(b) Explain why plants are smaller in the lower layers of the rainforest.

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(2)

Q3

(Total 4 marks)



4. A lake in Norfolk is surrounded by farmland. The lake has turned green.

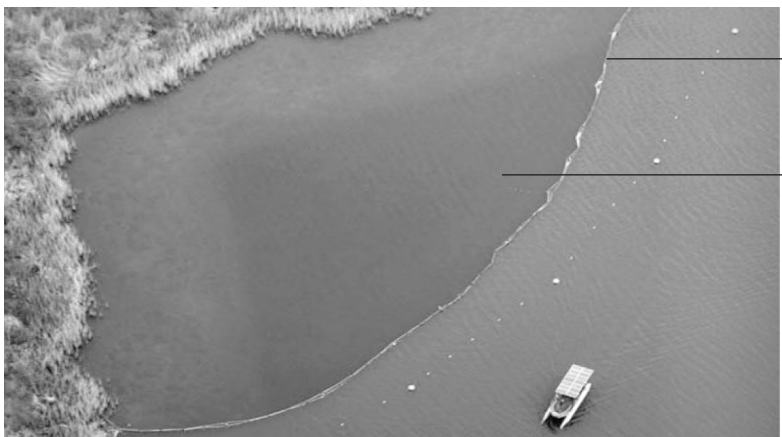
(a) (i) Explain why the lake turned green.

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..... (2)

(ii) What effect would the green growth have on plants growing on the bottom of the lake?

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..... (2)

(b) Scientists built a fish proof barrier across the lake. They removed all the fish from zone A.



One food chain for this lake is



Suggest how removing the fish helped to clear the water in zone A.

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..... (2)

(Total 6 marks)

Q4



5. The photograph shows some human cells.



Sebastian Kaulitzki/Shutterstock

(a) Name **two** substances the cells need to release energy.

- 1
- 2 **(1)**

(b) Carbon dioxide is a waste product of cells.
Explain how diffusion removes carbon dioxide from the cells.

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..... **(2)**

(c) Human cells can respire anaerobically.
Explain what happens when cells respire anaerobically.

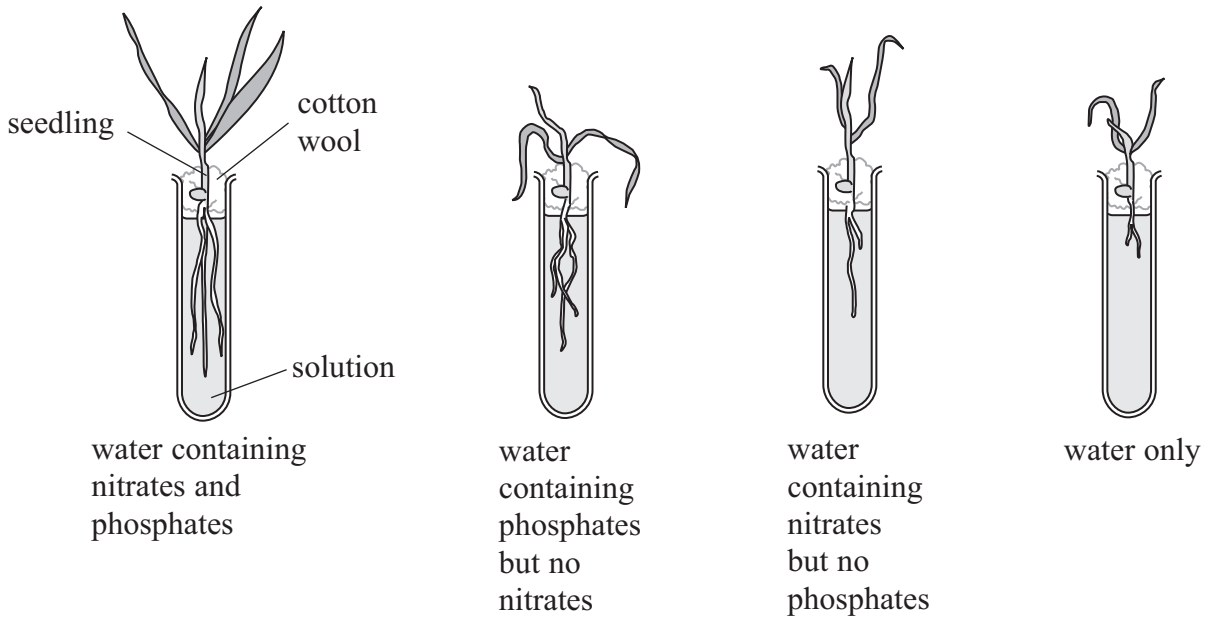
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..... **(2)**

(Total 5 marks)

Q5



6. Mike investigated the role of mineral salts in plant growth. He set up the investigation as shown in the diagram.



(a) Explain why the tube containing water only was included in the investigation.

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(1)

(b) What is the effect of a lack of phosphates on the growth of plants?

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(1)



(c) Explain how mineral salts are absorbed by plant roots.

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(3)

(Total 5 marks)

Q6



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