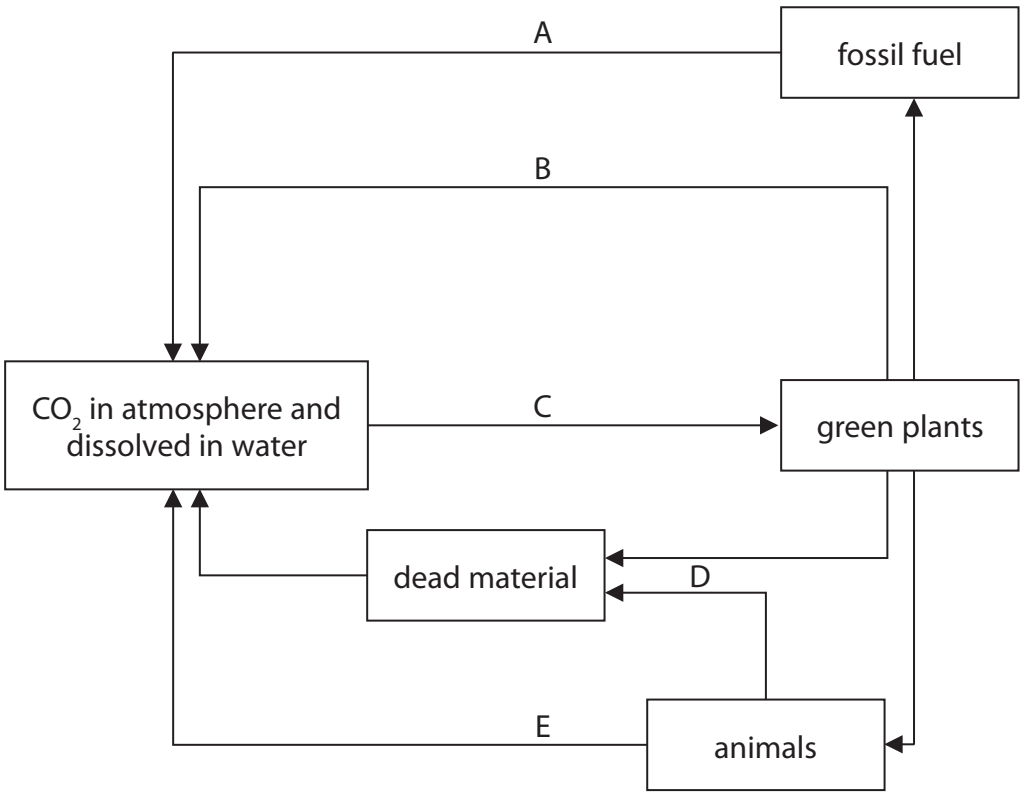
1 The diagram shows the carbon cycle.



(a) (i) Identify the processes labelled A, B, C, D and E.

(5)

A .....

B .....

C .....

D .....

E .....

(ii) Give the letter of the process that reduces the carbon dioxide in the atmosphere.

(1)

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(b) An increase in the level of carbon dioxide in the atmosphere can lead to an enhanced greenhouse effect.

Describe the possible consequences of an enhanced greenhouse effect.

(4)

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(c) Suggest two ways to reduce the build up of greenhouse gases in the atmosphere.

(2)

1 .....

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2 .....

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(Total for Question = 12 marks)

2 (a) Some nuclear power stations take in cold water from the sea and use it to cool their reactors. The warmed water is released back into the sea. This can cause thermal pollution because the increased water temperature has an effect on the concentration of dissolved oxygen.

The table shows the effect of water temperature on the concentration of dissolved oxygen.

Water temperature in °C	Concentration of oxygen in mg per litre
5	12.37
10	10.92
15	9.76
20	8.84

(i) Calculate the percentage change in concentration of oxygen when the water temperature rises from 10 °C to 15 °C. Show your working.

(2)

Answer = ...%

(ii) Use information from the table to explain why it would be unlikely for a fish farm to be situated near a power station.

(2)

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(b) The table lists some methods used to produce large numbers of fish on a fish farm.

Complete the table by stating how each method helps to increase fish production.

(3)

Method	How method increases fish production
adding antibiotics to the water	
using nets to cover tanks	
feeding small quantities of food frequently	

(c) Fish are a good source of protein in the human diet.

Describe what happens to fish protein in the gut of a human.

(5)

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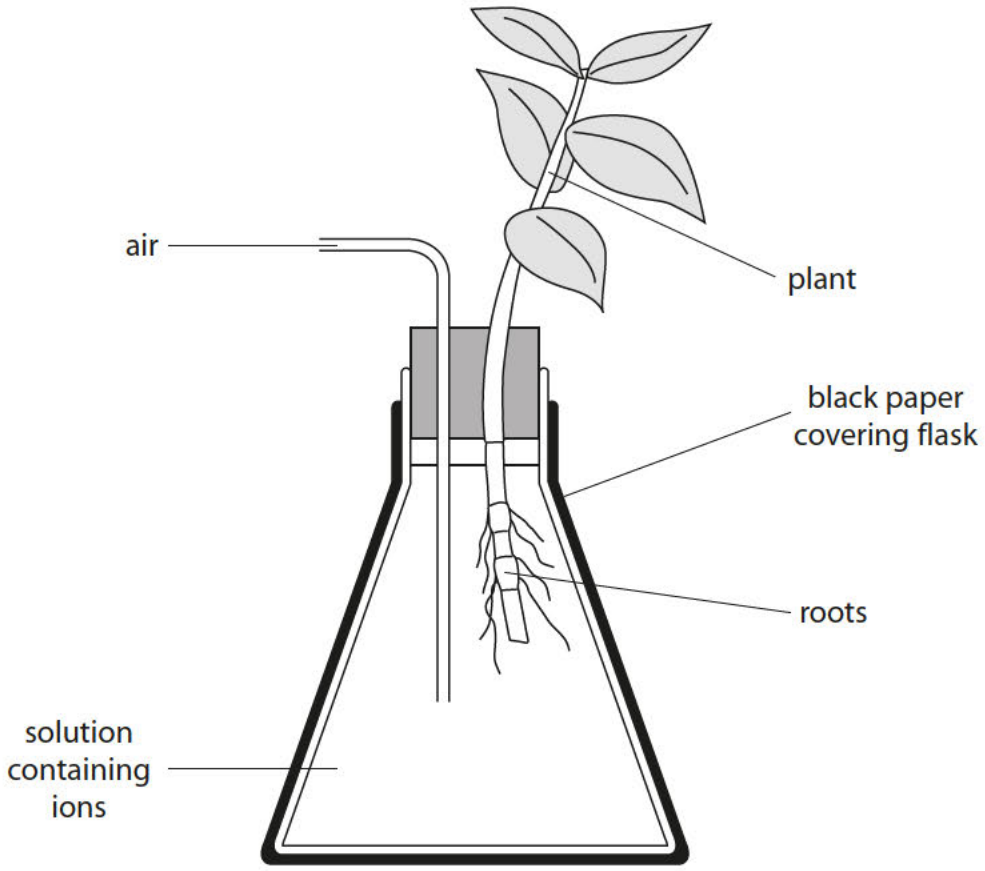
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(Total for Question = 12 marks)

3 A student used this apparatus to find out if nitrate ions helped plants to grow.



A young plant was grown in a solution that contained all the ions needed for growth.
A different young plant was grown in a solution that also contained all the ions needed for growth except nitrate.

(a) (i) Suggest why the solutions have air bubbled into them.

(2)

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(ii) Suggest why the apparatus was covered in black paper.

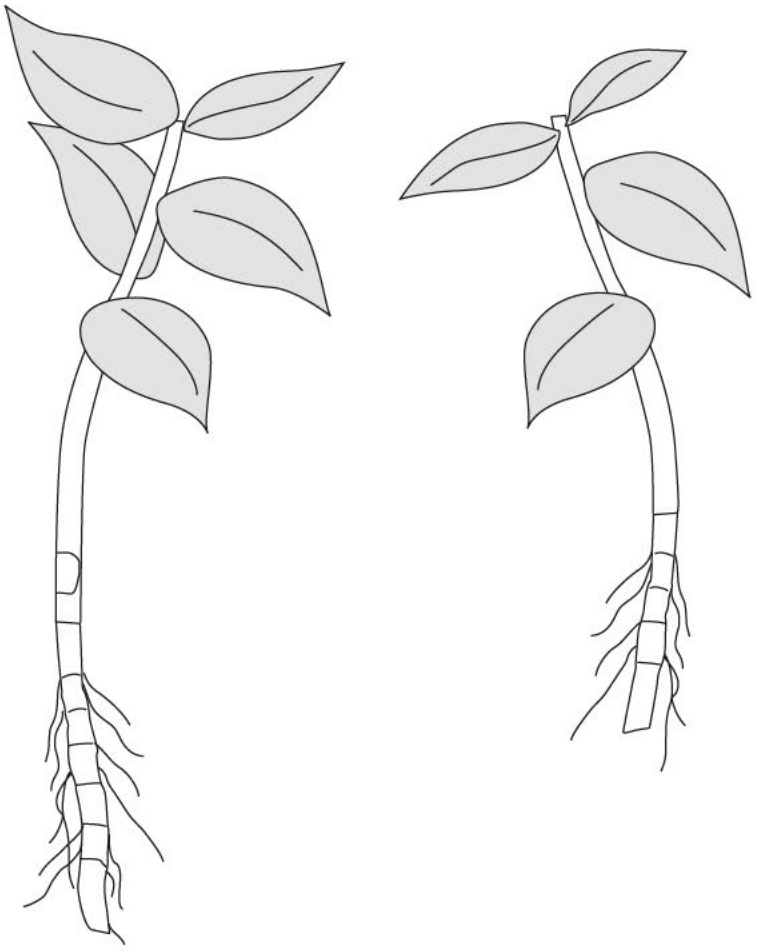
(2)

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(b) The diagram shows the young plants after 55 days of growth.



(i) Measure the length of the plants in mm and write your answers below.

(2)

plant grown in the solution containing all the ions ..... mm

plant grown in the solution without nitrate ions ..... mm

(ii) Suggest how the student could make the results of the investigation more reliable.

(1)

.....

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(iii) Suggest **two** factors, not seen in the diagram, that the student should keep the same for both plants while they are growing.

(2)

1 .....

2 .....

(c) Explain the consequences of fertiliser containing nitrates polluting a river.

(6)

(Total for Question = 15 marks)