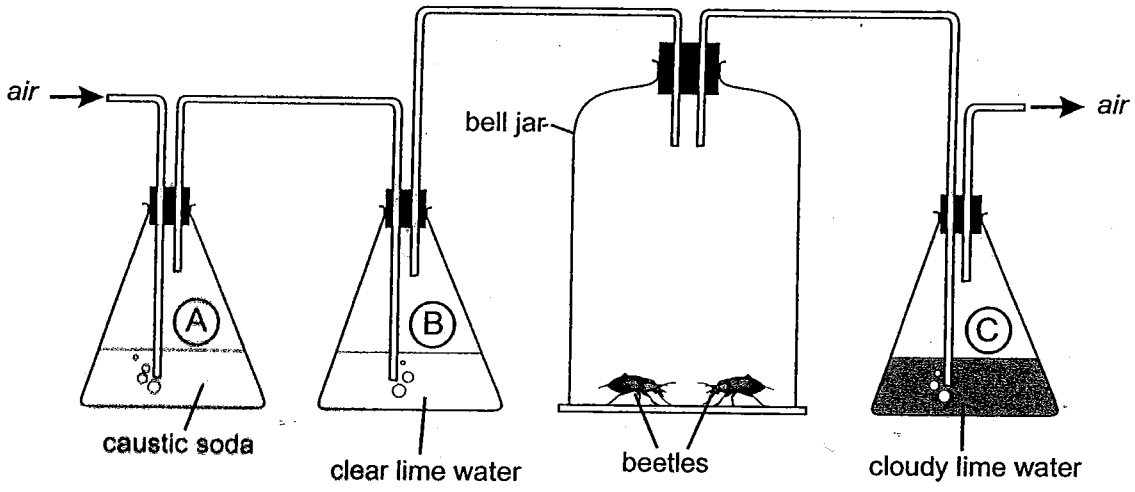
Biology Section. Name .....

Answer all the questions in the spaces provided.

1. Some students did an experiment to show that carbon dioxide is given off in respiration. It was set up as shown in the diagram.
Lime water goes cloudy when it is exposed to carbon dioxide.



(a) Caustic soda removes carbon dioxide from the air. Why is it necessary to remove carbon dioxide from the air before it enters the bell jar?

.....

.....

1 mark

(b) Why is flask B included in the apparatus?

.....

.....

1 mark

(c) Write a **word equation** for respiration.

.....

2 marks

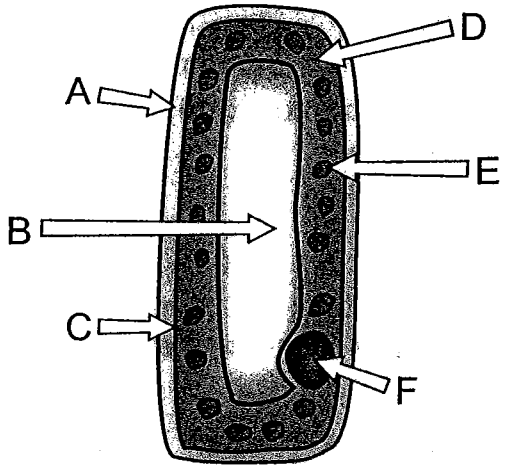
(d) What would you expect to happen to the lime water in flask C if a plant had been used in the bell jar, and the experiment had been carried out in the dark?

.....

1 mark

Maximum 5 marks

2. The diagram below shows a plant cell.



(a) Name structure F and state its function.

Name of structure F: .....

Function of F: .....

2 marks

(b) Give the letters of the three structures that would also be found in animal cells.

....., ... and .....

1 mark

(c) State a feature shown in the diagram which indicates that this cell does **not** come from a root. Explain your answer.

Feature: .....

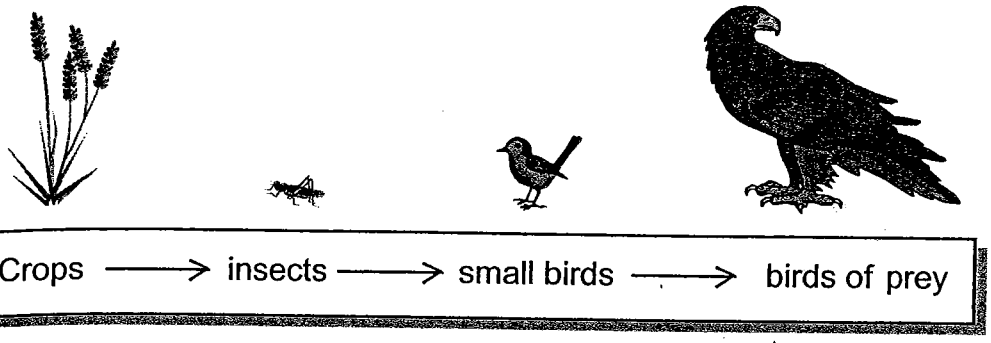
Explanation: .....

.....

3 marks

Maximum 6 marks

3. The following is an example of a food chain.



In the 1950s and 1960s, the insecticide DDT was sprayed onto crops to kill insects. After a while, dangerously high levels of DDT were found in birds of prey. However, the small birds that ate the insects were unaffected.

(a) Suggest why the birds of prey were affected by the DDT but the smaller birds were not.

.....

.....

.....

2 marks

(b) Many farmers nowadays use natural predators to help control insect numbers. Explain why this is likely to be better than using chemical pesticides.

.....

.....

1 mark

(c) Suggest one advantage of using a chemical pesticide rather than a natural predator.

.....

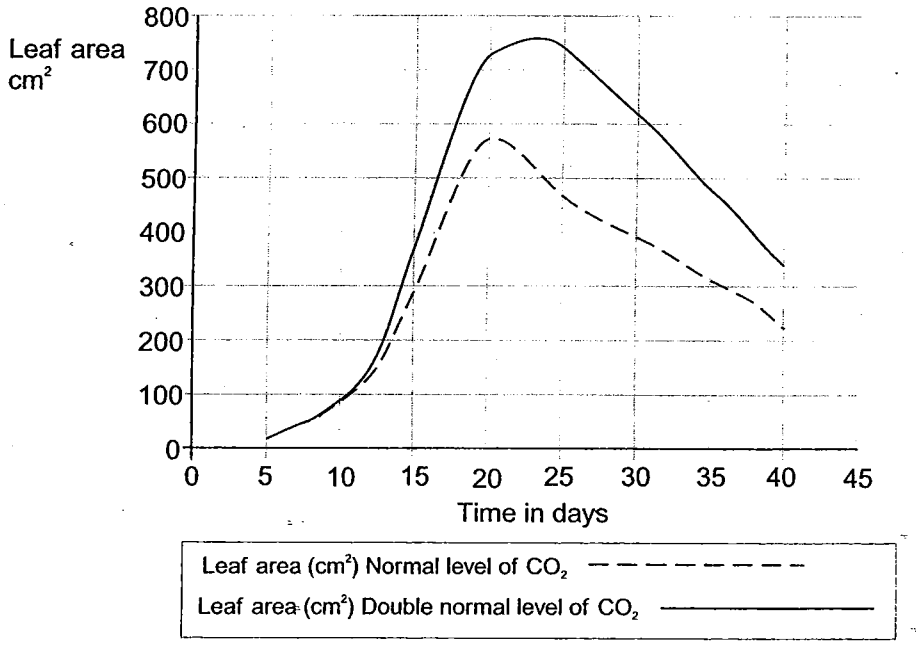
.....

1 mark

Maximum 4 marks

4. Some scientists did an experiment to find the effect of different levels of carbon dioxide on the growth of plants. They germinated some seeds and then measured the total area of the leaves over 40 days.

One group of plants was kept in a greenhouse with the normal level of carbon dioxide. Another group was kept in a greenhouse with twice the normal level of carbon dioxide. The results are shown in the graph.



(a) What effect did increasing the level of carbon dioxide have on plant growth?

.....

.....

1 mark

(b) Explain why you think this was.

.....

.....

2 marks

(c) Suggest a reason why the leaf area of both sets of plants decreased after 20 to 25 days.

.....

.....

1 mark

(d) Suggest **one** thing that the scientists would have had to have done to make sure their experiment was a fair test.

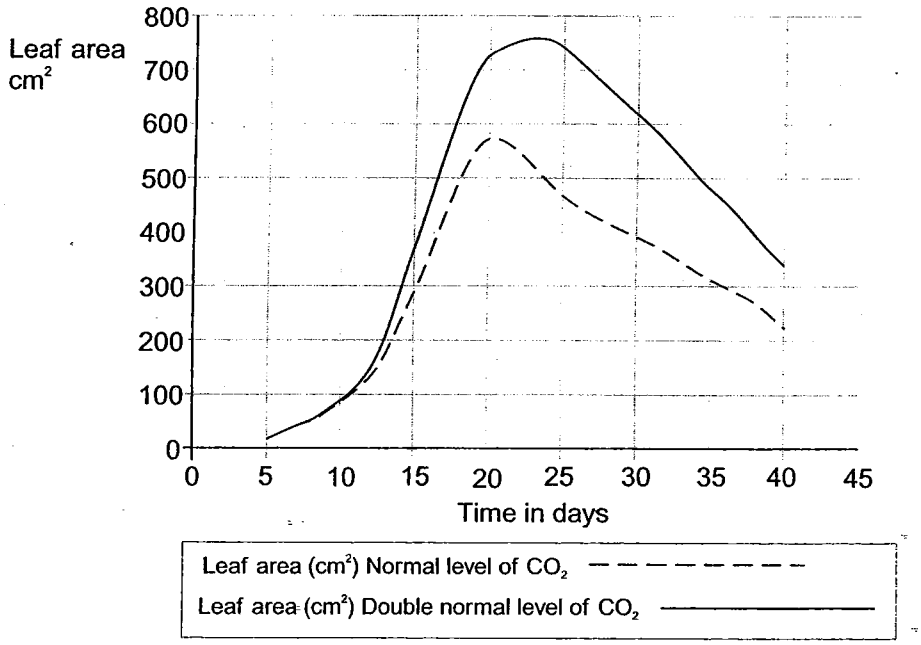
.....

1 mark

Maximum 5 marks

4. Some scientists did an experiment to find the effect of different levels of carbon dioxide on the growth of plants. They germinated some seeds and then measured the total area of the leaves over 40 days.

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.....

.....

1 mark

(b) Explain why you think this was.

.....

.....

2 marks

(c) Suggest a reason why the leaf area of both sets of plants decreased after 20 to 25 days.

.....

.....

1 mark

(d) Suggest **one** thing that the scientists would have had to have done to make sure their experiment was a fair test.

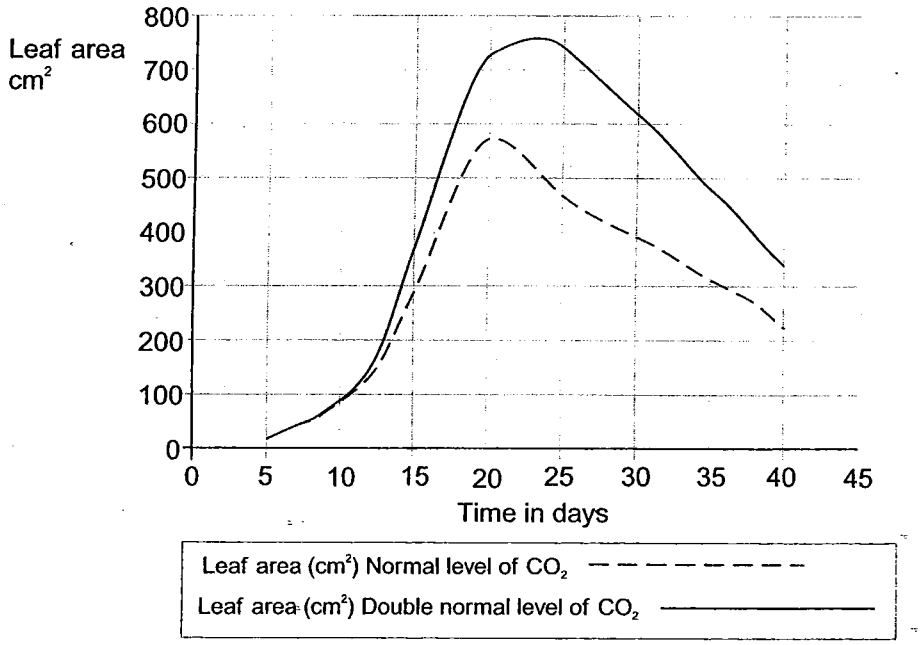
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1 mark

Maximum 5 marks

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.....

.....

2 marks

(c) Suggest a reason why the leaf area of both sets of plants decreased after 20 to 25 days.

.....

.....

1 mark

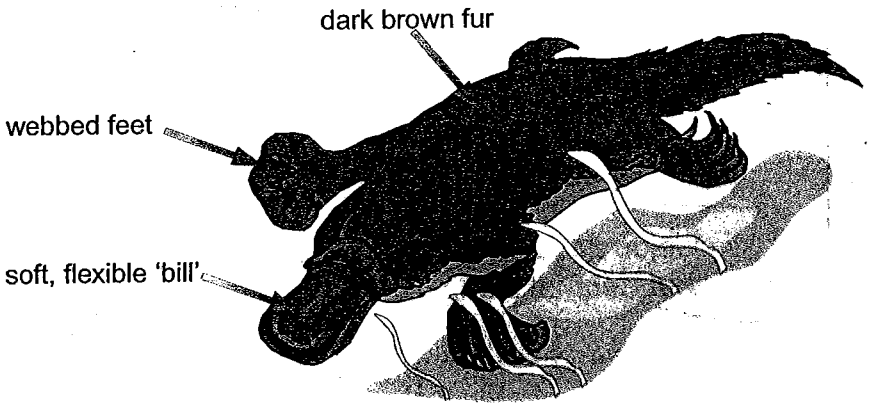
(d) Suggest **one** thing that the scientists would have had to have done to make sure their experiment was a fair test.

.....

1 mark

Maximum 5 marks

5. The duck-billed platypus is an unusual mammal that lives in Australia. It lives mostly in water. It lays eggs and, when they hatch, the mother feeds her young on milk. It is a protected species but is threatened by water pollution and land clearance for building. Use this information and the picture to answer the questions.



(a) Name **one** feature of the platypus that is not usually found in mammals, but is a feature of both fish and birds.

.....

1 mark

(b) State **two** features of the platypus that show that it is a mammal.

1. .....

2. .....

2 marks

(c) Suggest why the platypus might be threatened by:

(i) Water pollution

.....

1 mark

(ii) Land clearance

.....

1 mark

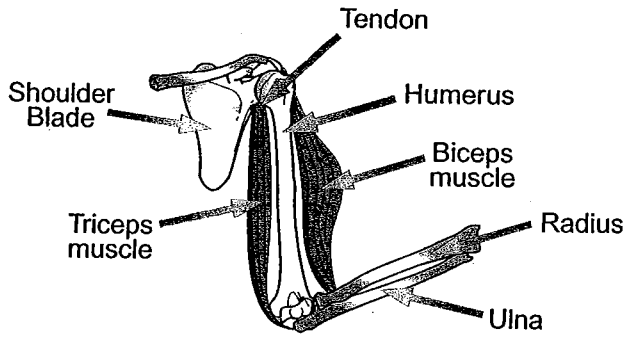
(d) State one feature of the platypus which is an adaptation to living in water.

.....

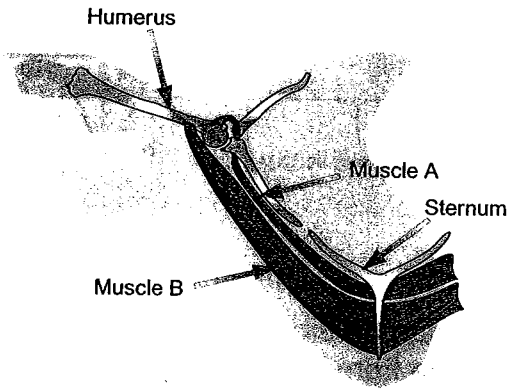
1 mark

Maximum 6 marks

6. The diagram below shows the main muscles in a human arm.
The biceps muscle raises the arm and the triceps lowers it.



Now look at the diagram below of the muscles in a bird's shoulder that move its wing, and answer the questions that follow.



(a) Which muscle, A or B, would **raise** the bird's wing?

.....

1 mark

(b) Muscles A and B are called **antagonistic** muscles.
What does this mean?

.....

1 mark

(c) Why is it necessary for nearly every muscle to have another one that is antagonistic to it?

.....

.....

2 marks

Maximum 4 marks