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UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME	

CENTRE NUMBER						CANDIDATE NUMBER				

Biology **0610/51**

Paper 5 Practical Test **May/June 2012**

1 hour 15 minutes

Candidates answer on the Question Paper

Additional Materials: As listed in the Confidential Instructions

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen.
You may use a pencil for any diagrams or graphs.
Do not use staples, paper clips, highlighters, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Answer **both** questions.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

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1	
2	
Total	

This document consists of **11** printed pages and **1** blank page.

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1 Read through the whole question before starting work.

You are going to observe the effect of different conditions on leaf **R**.

R is part of a tubular leaf. It is hollow inside.

- Cut **R** into three pieces, each 2 cm long.
- Make four cuts, each 1 cm long, in one of the pieces as shown in Fig. 1.1.

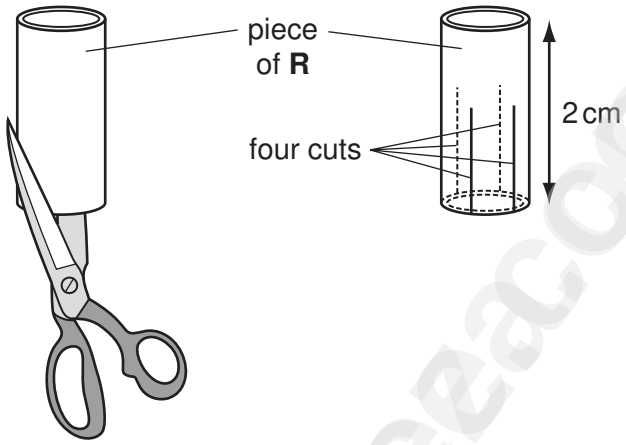

Fig.1.1

- Repeat the process with the other two pieces of leaf.

You now have three pieces of **R**, each with four cuts.

(a) **(i)** Draw one of the pieces of **R** to show the shape after cutting.

[1]

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- Put the first piece of **R** into the beaker of water, labelled **water**.
- Put the second piece into the beaker of salt solution, labelled **salt solution**.
- Put the third piece on the piece of filter paper.
- Keep the three pieces in their different conditions for 10 minutes.

While you are waiting start question **2**.

(ii) After 10 minutes look at the three pieces without touching them. Draw them in Table 1.1.

Table 1.1

in water	in salt solution	in air

[3]

(iii) Hold each piece between your fingers and record your observations in table 1.2.

Table 1.2

in water	in salt solution	in air
.....	.....	.....
.....	.....	.....
.....	.....	.....
.....	.....	.....
.....	.....	.....

[3]

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(iv) Explain the reasons for any differences that you have observed.

.....

.....

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.....

..... [3]

(v) Suggest how this investigation could be improved.

.....

.....

.....

..... [2]

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(b) Fig.1.2 is a photomicrograph of a section through a tubular leaf like **R**.

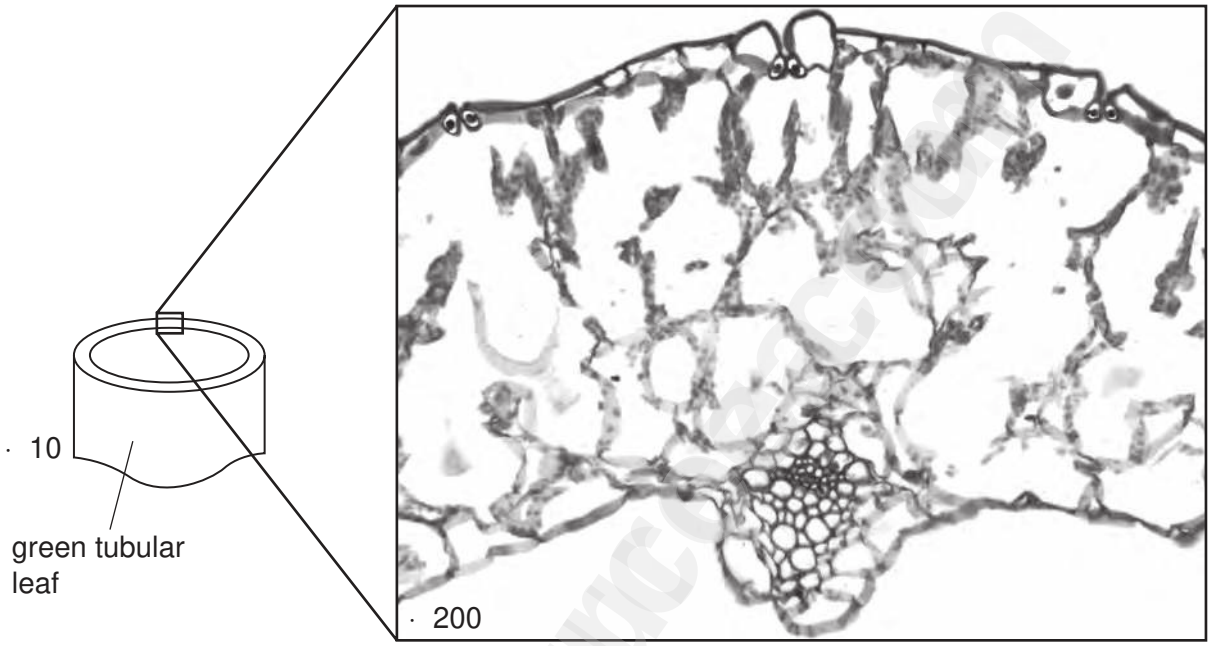

Fig. 1.2

(i) On Fig. 1.2, use lines to label clearly:

A a mesophyll cell,
B a xylem vessel,
C an epidermal cell.

Draw the label lines with the letters **A**, **B** and **C** on Fig. 1.2. [3]

(ii) There are stomata on the leaf in Fig. 1.2. Draw a circle round one of them.

Draw the circle on Fig. 1.2. [1]

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(c) **S** is a small piece of the same leaf as **R**. Cut up piece **S** into many smaller pieces.

(i) Put the small pieces into a clean test-tube. Use the rod to push the pieces of leaf to the bottom of the tube. Safely test the contents of the tube for the presence of reducing sugar.

If you require hot water, raise your hand and it will be brought to you.

Describe exactly how you did the test.

.....

.....

.....

.....

.....

..... [3]

(ii) The reducing sugar test can tell you that:

- reducing sugar is absent
- reducing sugar is present at a low concentration
- reducing sugar is present at a high concentration

Explain how you can tell the difference between these possible results **and** state the results of your test and what conclusion you would draw.

.....

.....

.....

.....

.....

..... [3]

[Total: 22]

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Question 2 begins on page 8

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2 Fig.2.1 shows three worms. One is a nematode.

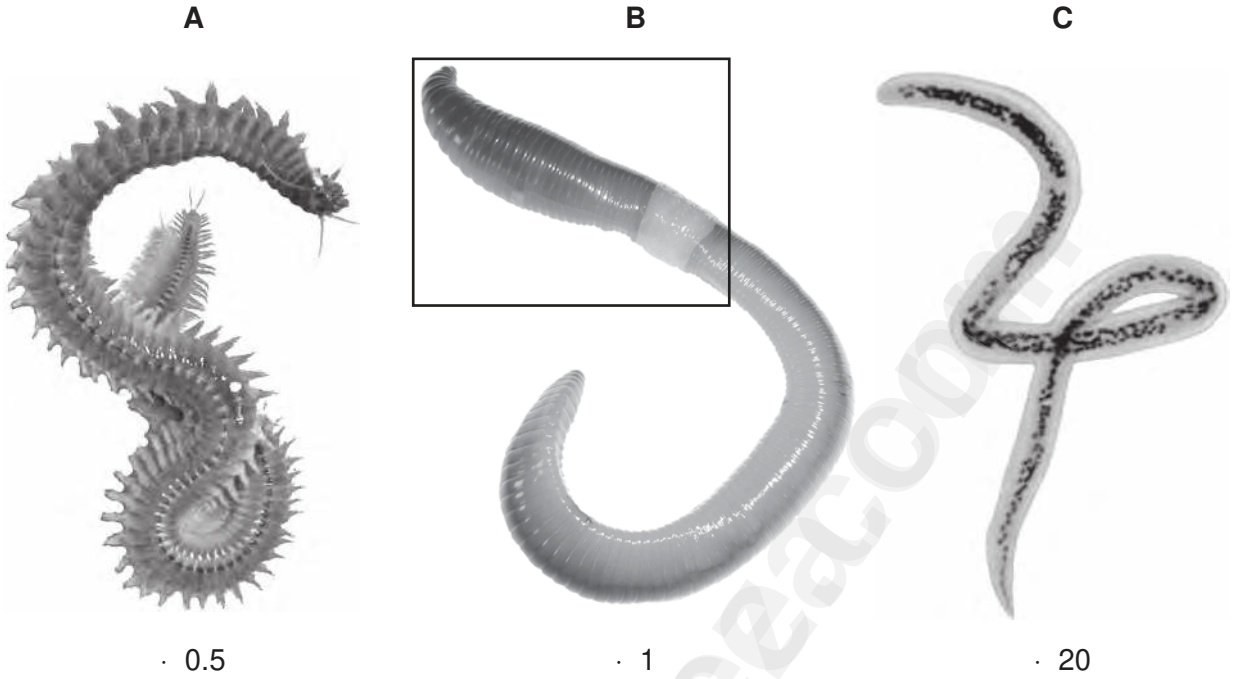

Fig. 2.1

(a) **(i)** Write down the letter that identifies a nematode worm ..... [1]

(ii) Give **two** reasons for your answer.

.....

.....

.....

..... [2]

(iii) The other two worms belong to a different group.

Name this group ..... [1]

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(b) Part of the worm labelled **B** is shown in a rectangle.

Make a large labelled drawing of this part of worm **B**.

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[4]

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(c) Some students studied a population of 40 worms. They measured the lengths of 35 of them. These measurements are shown in Table 2.1.

(i) Complete Table 2.1 by measuring the lengths of the five worms shown in Fig. 2.2. Use the string and a ruler to measure them.

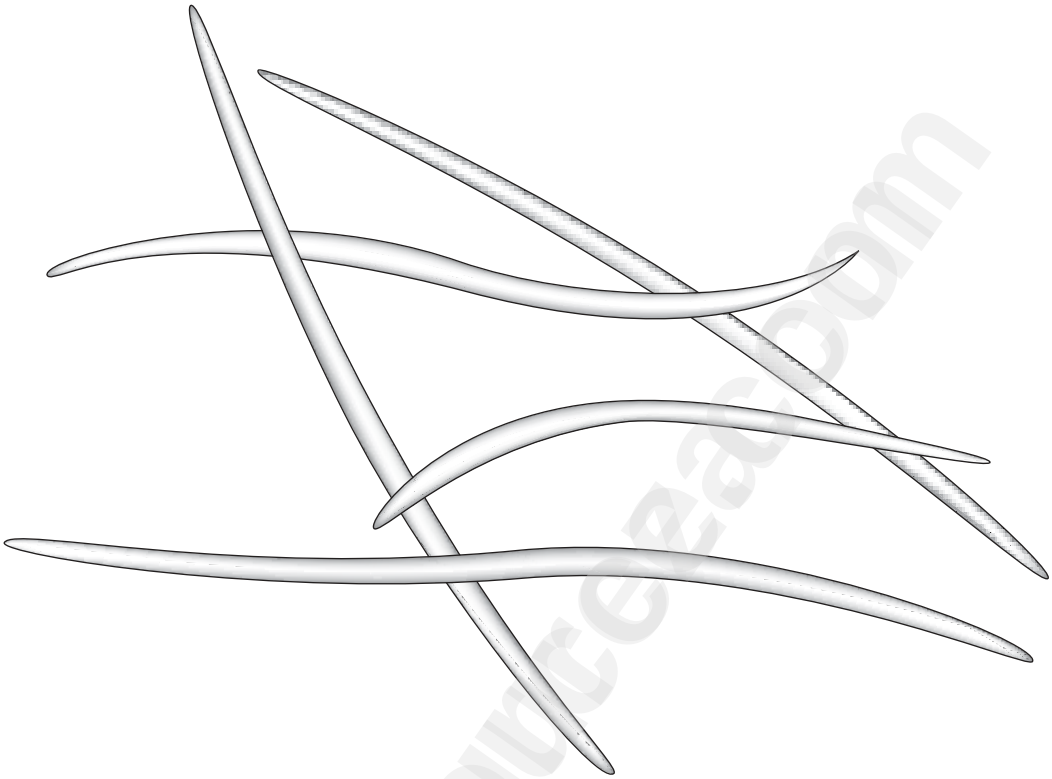

Fig. 2.2

Table 2.1

length / cm	7.0	8.1	10.8	6.2	11.4	9.0	10.3	12.1	13.5	5.6
length / cm	11.3	7.9	12.9	7.4	13.1	13.7	15.5	8.8	14.1	15.2
length / cm	9.6	8.4	14.7	16.0	7.2	10.5	9.2	12.4	6.7	13.3
length / cm	14.0	11.6	12.6	12.2	8.3	.....	.....	.....	.....	.....

Record the length of each worm in Table 2.1 [2]

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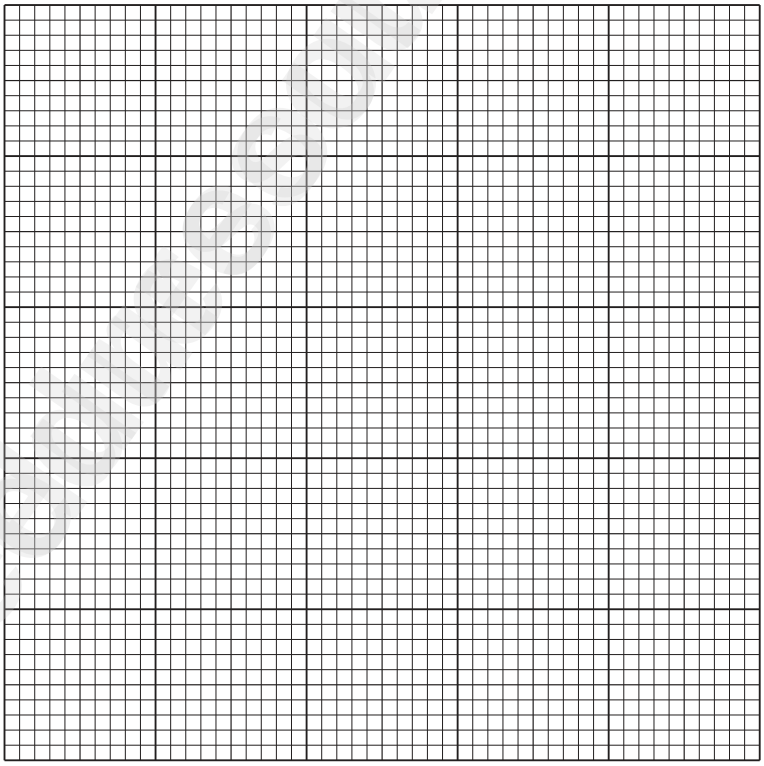
(ii) Complete the tally chart, Table 2.2, to show the number of worms in each range of lengths.

Table 2.2

range of lengths / cm	tally	frequency
5.0 - 6.9	.....	.....
7.0 - 8.9	.....	.....
9.0 - 10.9	.....	.....
11.0 - 12.9	.....	.....
13.0 - 14.9	.....	.....
15.0 - 16.9	.....	.....

[3]

(iii) Use the data from Table 2.2 to plot a histogram showing the frequency of each range of lengths.



[4]

Question 2 continues on page 12

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(iv) Suggest a reason for the shape of the histogram.

.....

..... [1]

[Total: 18]

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