



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE
NAME

CENTRE
NUMBER

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CANDIDATE
NUMBER

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Biology

0610/52

Paper 5 Practical Test

May/June 2011

1 hour

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.

For Examiner's Use	
1	
2	
Total	

This document consists of **10** printed pages and **2** blank pages.



- 1 You are going to carry out a test for vitamin C.

You are provided with three vitamin C solutions, **S1**, **S2** and **S3**.

S1 has a concentration of 0.2% vitamin C.

S2 has a concentration of 0.05% vitamin C.

The concentration of **S3** is not known.

Read all the instructions before you begin work.

Proceed as follows:

- Measure 1 cm³ of starch solution into a test-tube.
- Add 1 cm³ of solution **S1**.
- Shake gently to mix.

Prepare a table in which to record your observations, in the space in question 1(a).

You are going to add iodine solution to the mixture, drop by drop.

You should count every drop that you add.

- Add one drop of iodine solution and shake gently to mix.
- Keep adding iodine solution, drop by drop, until a blue colour appears. This is the end-point for solution **S1**.
- Repeat the test on solutions **S2** and **S3**.

(a) Record your observations in the table that you have prepared.

(b) Use your results to suggest the approximate vitamin C concentration of **S3**.

Give reasons for your answer.

.....
.....
.....
.....
.....
..... [3]

(c) Suggest **four** ways in which you could improve this method to find the concentration of an unknown vitamin C solution.

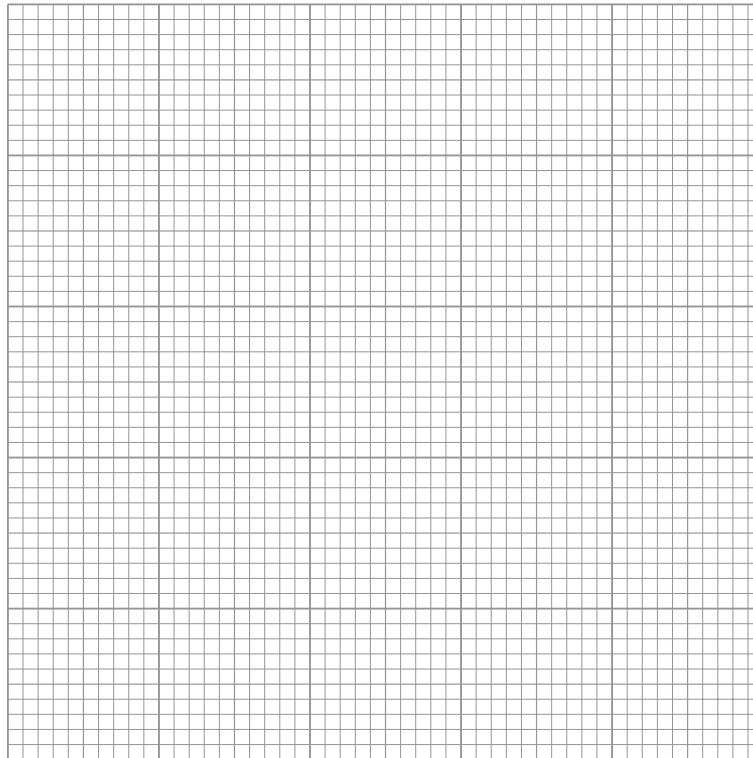
1.
.....
2.
.....
3.
.....
4.
..... [4]

- (d) Fig. 1.1 shows the results of a similar investigation into the concentration of vitamin C in five fruit juices. The numbers are the number of drops of iodine solution used to reach the end-point for each fruit juice.

Blackcurrant 48	Pineapple 5
Orange 16	Lemon 12
Strawberry 22	

Fig. 1.1

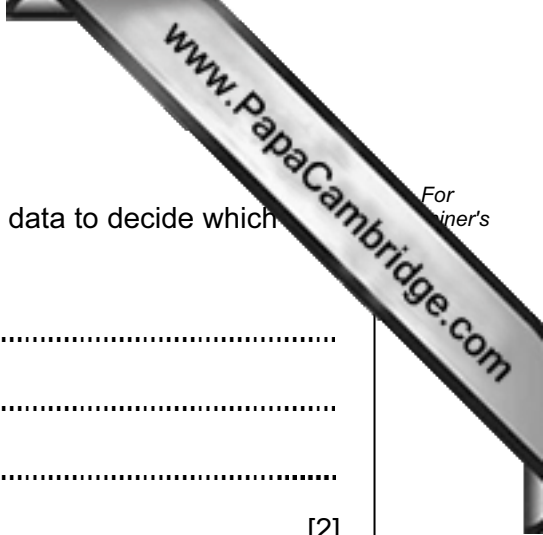
- (i) On the grid below plot the data from Fig. 1.1 to show the variation in the number of drops of iodine solution required to reach the end-point.



[5]

- (ii) State which fruit juice has the highest concentration of vitamin C.

..... [1]



(ii) Explain how you used the results in (a) and the fruit juice data to decide which juice has the highest concentration of vitamin C.

.....

.....

.....

..... [2]

[Total: 20]

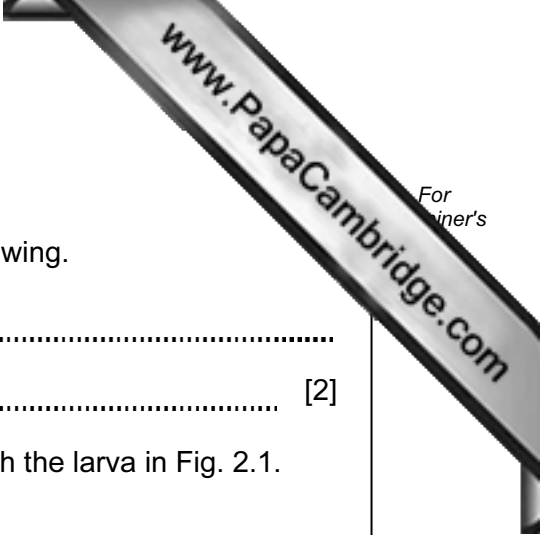
2 Fig. 2.1 shows a photograph of the larva of an insect.



Fig. 2.1

(a) (i) In the space below make a large drawing of the larva shown in Fig. 2.1.

Labels are **not** needed.



(ii) Measure the length of the larva in Fig. 2.1 and in your drawing.

length of larva in Fig. 2.1

length of larva in your drawing [2]

(iii) Calculate the magnification of your drawing compared with the larva in Fig. 2.1.

Show your working.

magnification [2]

- (b) The larva eats through leaf tissue making tunnels in which it lives.

Fig. 2.2 shows part of a leaf that has been damaged by these tunnels.

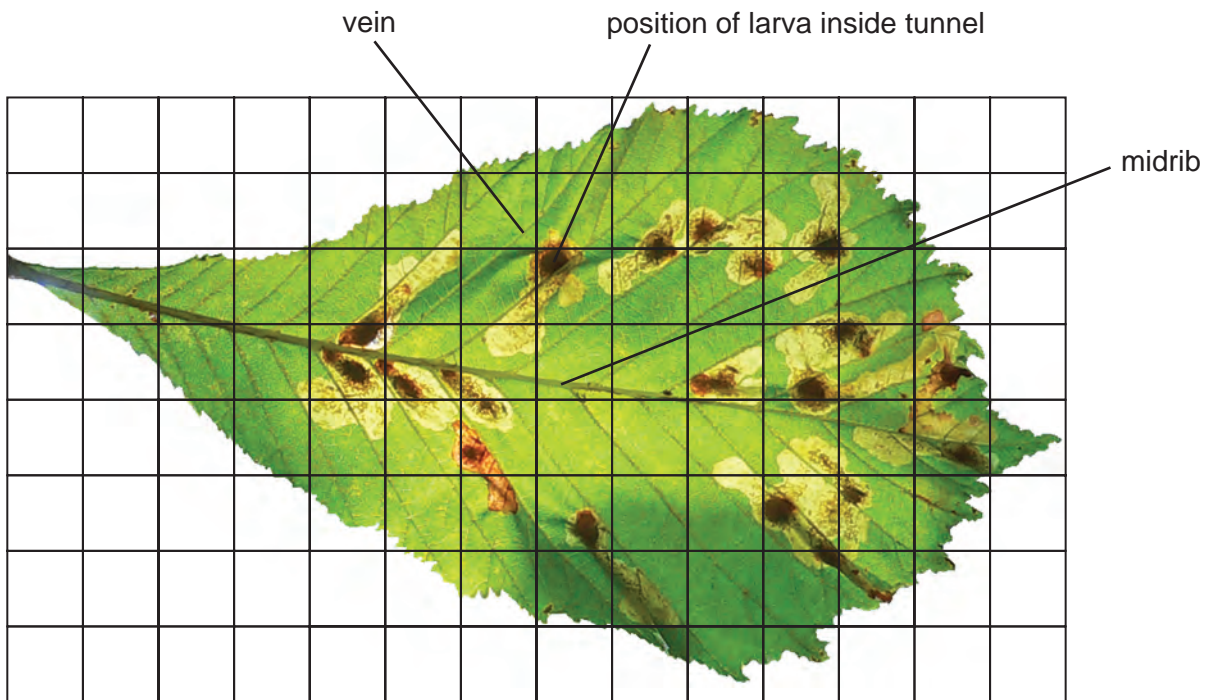
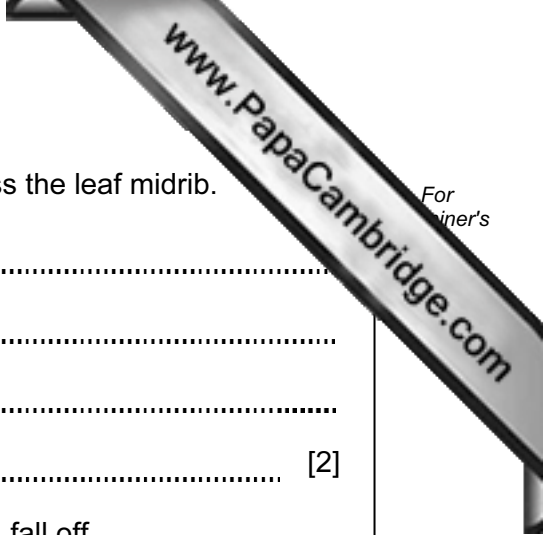


Fig. 2.2

- (i) Calculate the percentage of the leaf area which has been damaged by the tunnels.

Show your working.

answer% [3]



(ii) Suggest and explain why the tunnels do not extend across the leaf midrib.

.....
.....
.....
..... [2]

(iii) Suggest two reasons why the leaf in Fig. 2.2 may die and fall off.

1.
.....
2.
..... [2]

(c) The larva in Fig. 2.1 becomes a moth.

Fig. 2.3 and Fig. 2.4 show the moth.



Fig. 2.3



Fig. 2.4

Look at Fig. 2.3 and Fig. 2.4.

(i) State **one** visible feature of this moth which is used to classify it as an arthropod.

..... [1]

(ii) State three visible features of this moth which are used to classify it as an insect.

1.

2.

3. [3]

[Total: 20]

