



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
International General Certificate of Secondary Education

CANDIDATE  
NAME

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CENTRE  
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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 cm<sup>3</sup> of starch solution into a test-tube.
- Add 1 cm<sup>3</sup> 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.

[5]

(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]

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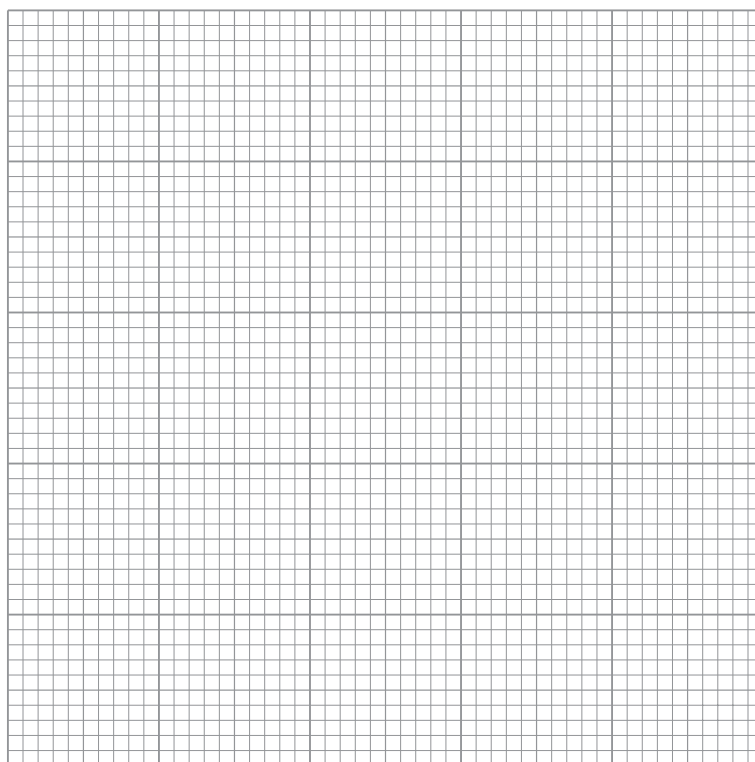
- (d) Fig. 1.1 shows the results of a similar investigation into the concentration of vitamin C in five fruit juices. The numbers are the number of drops of iodine solution used to reach the end-point for each fruit juice.

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|                 |             |
|-----------------|-------------|
| 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]

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

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.....

.....

.....

..... [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.

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[5]

- (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.

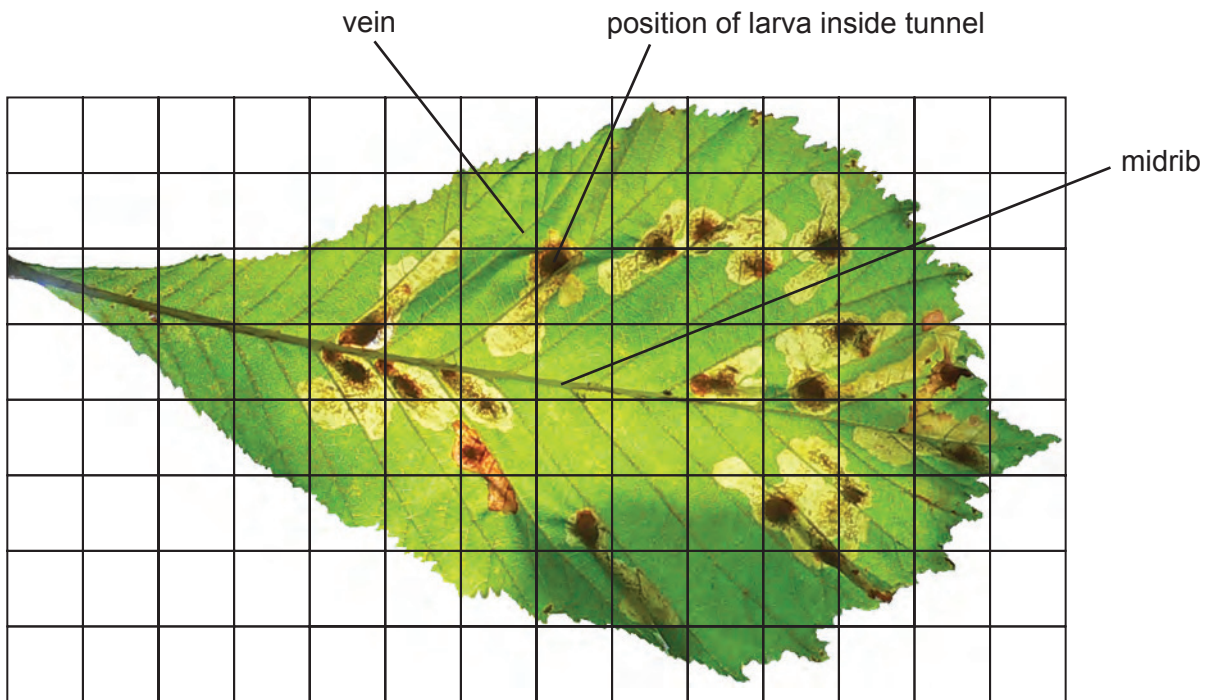


**Fig. 2.2**

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

Show your working.

answer .....% [3]

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(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]

*For  
Examiner's  
Use*

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

Fig. 2.3 and Fig. 2.4 show the moth.

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Fig. 2.3

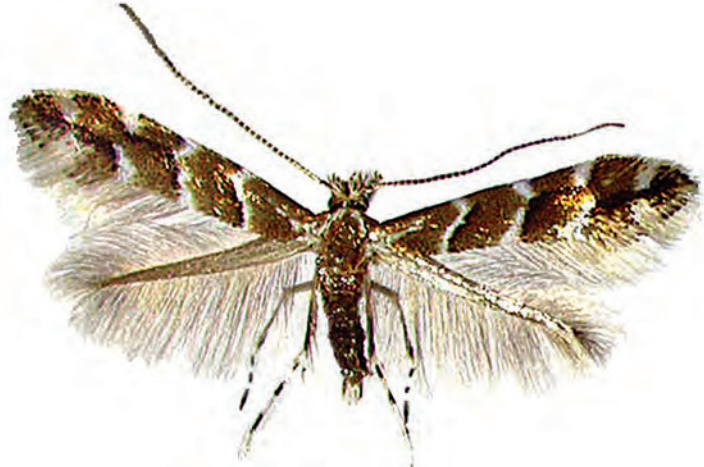


Fig. 2.4

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]

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