UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME	
CENTRE NUMBER	
CANDIDATE NUMBER	

4187612349

Biology **0610/52**

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

1 hour 15 minutes

Candidates answer on the Question Paper

Additional Materials: As listed in 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 **all** the 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	
3	
Total	

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

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1 Read through the whole question before starting work.

Apple tissue changes colour in the air. Apple cells are thought to contain an enzyme which is a catalyst for the reaction:

$$\text{colourless compounds} + \text{oxygen in the air} \xrightarrow{\text{enzyme}} \text{coloured compounds}$$

You are going to investigate this reaction.

(a) (i) Specimen **S1** is a piece of apple which has been left out in the air for an hour.

State the colour of the apple tissue in **S1**.

..... [1]

(ii) You are going to prepare a different piece of apple, **S2**.

- Remove the cling film from **S2**.
- Put **S2** flat on the tile as shown in Fig. 1.1.
- Use the plastic knife to cut a slice from **S2** removing the core, as shown in Fig. 1.1. The slice that you are going to use should look like Fig. 1.2.

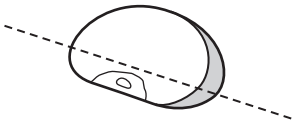
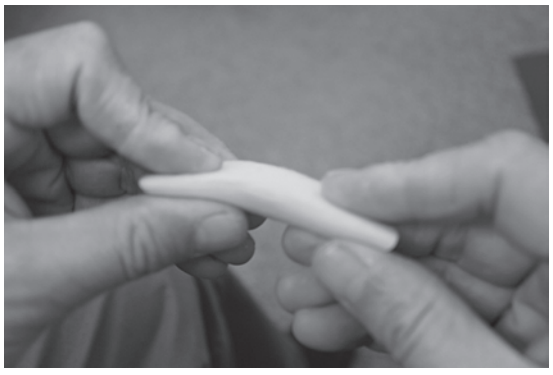


Fig. 1.1

Fig. 1.2

- Break this slice into two pieces as shown in Fig. 1.3.



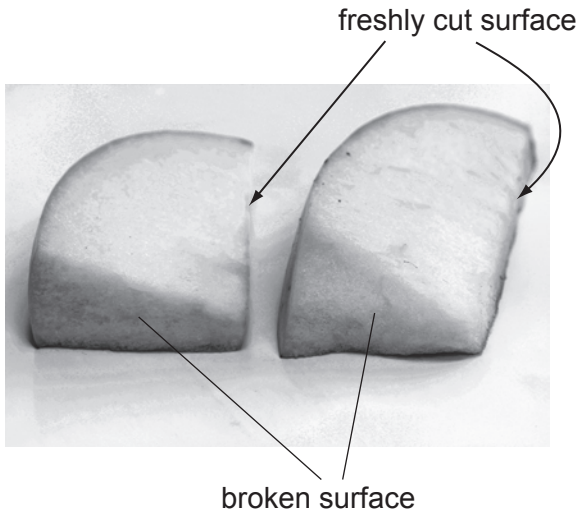


Fig. 1.3

- Use Fig. 1.3 to identify the freshly cut surface and the broken surface of each of your two pieces of apple from **S2**.
- Label the two dishes **1** and **2**.
- Put one piece of your apple into dish **1** and the other into dish **2**.
- Use the pipette to add a few drops of water to the cut surface and the broken surface of the apple in dish **1**. Put dish **1** to one side. Do not touch the apple.
- **S3** is a piece of citrus fruit. Squeeze a few drops of juice from **S3** over the cut surface **and** the broken surface of the piece of apple in dish **2**. Do not touch the apple.
- After five minutes, observe the pieces of apple.
  Record your observations in Table 1.1.
- Repeat your observations every five minutes for a total of 20 minutes.

Between your observations you should move on to **1(c)** and question **2**.

Table 1.1

time / minutes	dish **1**, apple without juice		dish **2**, apple with juice	
	broken surface	cut surface	broken surface	cut surface
5	…… ……	…… ……	…… ……	…… ……
10	…… ……	…… ……	…… ……	…… ……
15	…… ……	…… ……	…… ……	…… ……
20	…… ……	…… ……	…… ……	…… ……

[4]

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[Turn over

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(b) Describe any differences between the appearance of the **broken** surface in dish **1** and the **cut** surface in dish **1** after 20 minutes.

.....

..... [1]

(c) You are going to test **S3** with litmus paper.

- Touch the surface of **S3** with the litmus paper.
- Describe and explain any change in the litmus paper.

change .....

explanation .....

..... [2]

(d) (i) Describe any differences between the appearance of the cut surface in dish **1** and the cut surface in dish **2** after 20 minutes.

.....

..... [1]

(ii) The colour changes are thought to involve enzyme activity.

Explain if your observations in Table 1.1 and your description in **(d)(i)** support this statement.

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.....

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..... [3]

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(e) Cutting the apple with a knife damages cells, releasing the contents.

Suggest, from your observations in Table 1.1 and your description in **(b)**, how breaking the apple may affect the cells.

.....

..... [1]

(f) In another experiment, apple pieces were boiled in water for two minutes.

Explain why there was no colour change five minutes after they were taken out and left in the air.

.....

.....

.....

..... [2]

[Total: 15]

2 Fig. 2.1 shows an ant, *Iridomyrmex purpureus*, which is an insect.

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Fig. 2.1

(a) Make a large labelled drawing of the **head** of the ant in Fig. 2.1.

[4]

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(b) Fig. 2.2 shows a trap which can be used to catch other insects such as fruit flies.

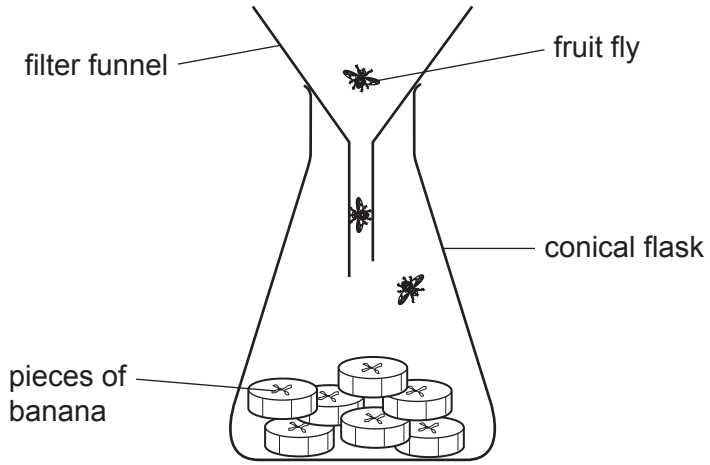

Fig. 2.2

(i) Fruit flies feed on fruits such as bananas. Bananas contain carbohydrates.

Describe how you could safely test pieces of banana for **two** different carbohydrates.

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..... [6]

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(ii) Carry out each test on a separate piece of banana. If you require hot water, raise your hand and it will be brought to you.

Describe your observations and conclusion.

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..... [4]

(c) Fig. 2.3 shows a banana and a similar fruit called a plantain.

Fig. 2.3

Suggest an investigation to find out if fruit flies are more likely to feed on banana or plantain.

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..... [3]

[Total: 17]

3 Fig. 3.1 is a photograph of the flower of *Hippeastrum* aglaiae.

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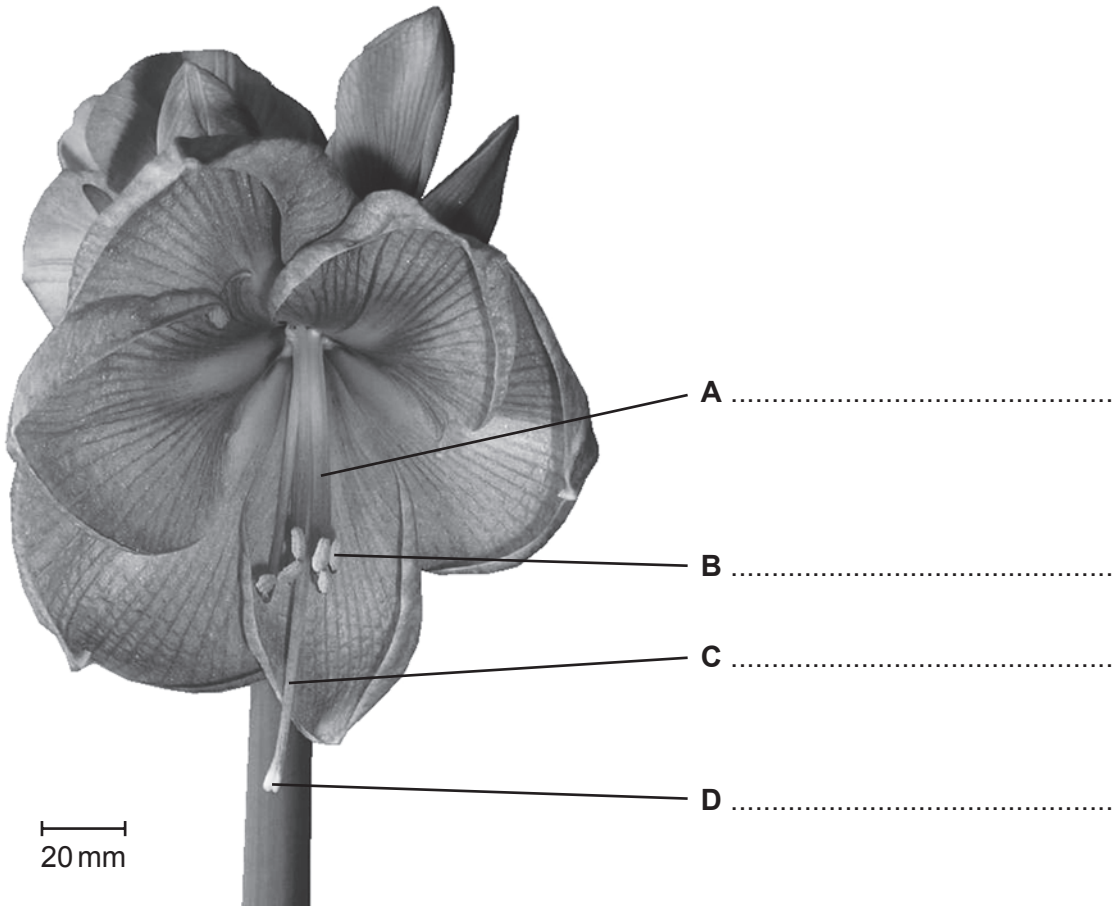

Fig. 3.1

(a) (i) On Fig. 3.1, name the parts of the flower labelled **A**, **B**, **C** and **D**.

Write your answers on the lines in Fig. 3.1. [4]

Plant breeders use small paint brushes to pollinate flowers of Amaryllis artificially.

(ii) State the letter of the part from which the pollen is taken. …….. [1]

(iii) State the letter of the part on which the pollen is put. ……. [1]

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[Turn over

Fig. 3.2 shows four pollen grains from an Amaryllis flower.

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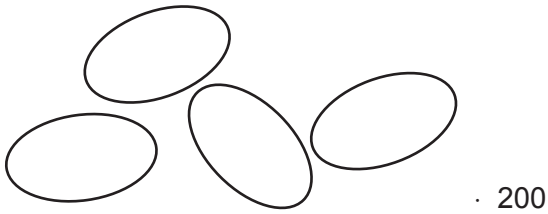

Fig. 3.2

(b) Measure the length of a pollen grain in mm.

Length of pollen grain …… mm

Calculate the actual length of the pollen grain that you measured in mm.

Show your working.

actual length of pollen grain ..... mm [2]

[Total: 8]

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Copyright Acknowledgements:

Question 2a Figure 2.1 Photograph © *Iridomyrex purpureus*; http://en.wikipedia.org/wiki/Meat_ant.
Question 2c Figure 2.3 Photograph © Banana and a plantain; http://www.grabemsnacks.com/what-is-a-plantain.html.
Question 3a Figure 3.1 Photograph Olive Ford © UCLES>

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