Cambridge O Level

Cambridge International Examinations
Cambridge Ordinary Level

CANDIDATE NAME	

CENTRE NUMBER						CANDIDATE NUMBER					

3245725681

BIOLOGY **5090/32**

Paper 3 Practical Test **May/June 2014**

1 hour 15 minutes

Candidates answer on the Question Paper.

Additional Materials: As specified 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 an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Answer **all** questions.
Electronic calculators may be used.
You may lose marks if you do not show your working or if you do not use appropriate units.

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 **9** printed pages and **3** blank pages.

DC (SJF/JG) 91058

CAMBRIDGE International Examinations

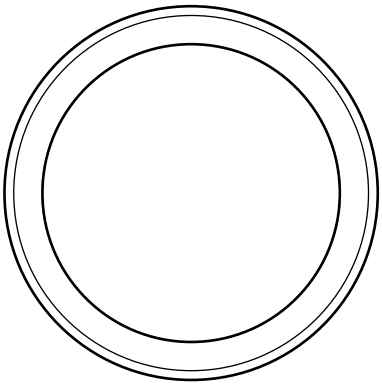
[Turn over

In order to plan the best use of your time, read through all the questions on this paper carefully before starting work.

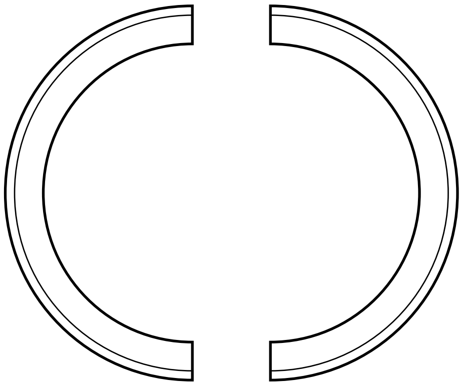
1 You are going to investigate the effect of sugar solution on onions.

You are provided with a transverse slice, 2 mm thick, that was cut from a whole onion.

- Separate the outer ring from the others as shown in Fig. 1.1A.
- Cut this ring into two equal halves as shown in Fig. 1.1B.



A



B

Fig. 1.1

- Place one piece in the dish containing distilled water and place the other piece in the dish containing sugar solution.

(a) **(i)** Draw the shape of these two pieces, at the start, in Table 1.1.
Show the position of the outer layer of onion on the drawing of each piece. [2]

Table 1.1

	shape of the piece	
	in distilled water	in sugar solution
at start		
after 30 minutes		

Leave the dishes for at least 30 minutes and proceed with Question 2.

(ii) After 30 minutes or more observe the two pieces of onion.
Draw the shape of these two pieces in Table 1.1 in the lower spaces. [2]

(iii) Describe the change in the shape in the two pieces of onion after 30 minutes compared to the pieces at the start.

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.... [2]

(iv) Explain what has happened to cause the changes in the pieces of onion.

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.... [5]

(b) State **one** factor that was kept the same in this investigation and explain why it was kept the same.

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.... [2]

[Total:13]

2 You are provided with half of an eating apple.

- Remove the wrapping.

(a) **(i)** Make a drawing to show the cut surface of this apple. Your drawing should be the same size as the specimen provided. Label the seeds and the remains of sepals.

[4]

(ii) Draw a line on your drawing to measure the widest part of the apple.
Record your measurement and units.

.... [1]

Fig. 2.1 shows a wild apple that is not suitable for eating.

Fig. 2.1

(iii) Draw a line on Fig. 2.1, in a similar position to the one you have marked on your drawing. Measure the length of this line and record below.

....

Calculate the number of times larger the eating apple you have drawn is compared with the wild apple shown in Fig. 2.1.
Show your working.

Number of times larger .... [4]

(b) As the apples ripen changes occur in them to make the apple less acidic and sweeter to taste.

- Cut a thin section from the apple and place on the white tile.
- Using the forceps pick up a piece of universal indicator paper and place it on the freshly cut surface of the section of apple.

(i) Record the colour of the indicator paper as the juice of the apple makes contact with the paper.

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Explain what the colour indicates.

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.... [2]

(ii) Describe how you could test a sample of apple to show whether sweetness is due to reducing sugar.

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.... [4]

(c) Eating apples are traditionally stored in cool, dark conditions to preserve them.

Some students compared two samples of eating apples that were stored under the same conditions.

Some apples were wrapped in paper and other apples were left unwrapped.

The students measured the total mass of each sample of apples over 10 days of storage.

Their measurements are recorded in Table 2.1.

Table 2.1

storage time/days	mass of sample of apples/g	
	wrapped in paper	unwrapped
0	505	500
2	495	480
5	475	455
7	460	435
10	455	420

(i) Complete Table 2.2, to show the loss in mass, compared to the starting mass, for the sample of unwrapped apples.

Table 2.2

storage time/days	loss in mass of sample of apples/g	
	wrapped in paper	unwrapped
0	0	0
2	10	
5	30	
7	45	
10	50	

[2]

(ii) Construct a graph of the data in Table 2.2, to show the loss of mass of the wrapped apples and unwrapped apples.

Use the same axes for plotting both sets of data.

[5]

(iii) Using your graph, calculate the difference in loss in mass between the unwrapped and wrapped apples after **8 days** of storage.

[3]

(iv) Suggest **two** processes by which the apples lost mass.

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.... [2]

[Total: 27]

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Fig. 2.1 DR KEITH WHEELER/SCIENCE PHOTO LIBRARY

