Cambridge
O Level

Cambridge International Examinations
Cambridge Ordinary Level

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

BIOLOGY **5090/31**

Paper 3 Practical Test **October/November 2015**

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 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.
Write your answers in the spaces provided on the Question Paper.

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.

CAMBRIDGE
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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 adding an enzyme to crushed fruit.

In each container, labelled **W1** and **W2**, there is 50 g of crushed fruit.

- Carefully pour the contents of the test-tube labelled '**water**' into the container labelled **W1**. Stir with the spoon provided.
- Carefully pour the contents of the test-tube labelled '**enzyme**' into the container labelled **W2**. Stir with the other spoon provided.

Leave **W1** and **W2** to stand for 10 minutes.

While waiting, set up the filters as shown in Fig. 1.1, using the beakers labelled **1** and **2** and the filter paper provided. If time allows, continue with part (b) of this question.

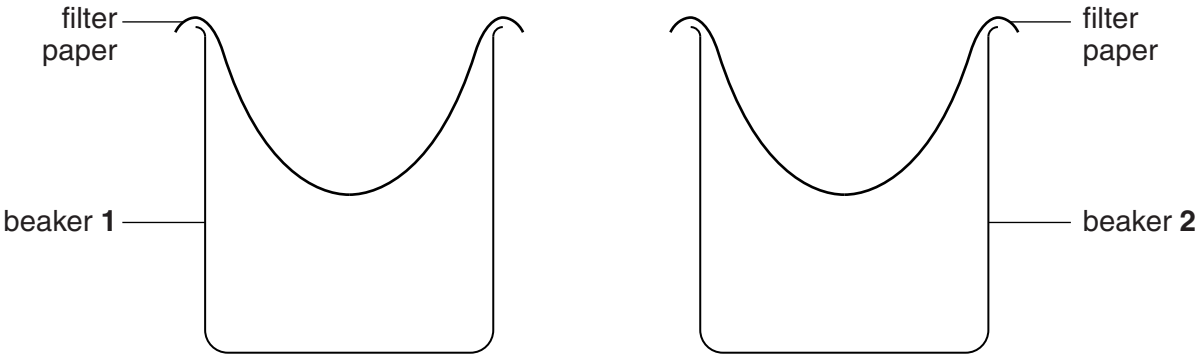

Fig. 1.1

After 10 minutes

- Pour the contents of container **W1** into the filter paper supported in beaker **1**.
- Pour the contents of container **W2** into the filter paper supported in beaker **2**.

Note the time .....

Leave the crushed fruit to filter for five minutes.

After five minutes, remove the filter papers and their contents and discard in containers **W1** and **W2**.

(a) (i) Complete Table 1.1 by measuring and recording the volumes of the juices you have collected, and noting their appearance.

Table 1.1

sample of juice	volume / cm^3	appearance
W1		
W2		

[4]

(ii) The enzyme is used in the production of fruit juice on a large scale.

Use your results to suggest a reason why the enzyme is used.

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.....[1]

(iii) Suggest why water was added to **W1**.

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.....[1]

(iv) Explain why the contents of the beakers were stirred.

.....

.....[1]

(v) State **three** variables that need to be kept constant during this investigation.

1 .....

2 .....

3 .....[3]

(vi) Suggest **three** ways in which you could extend and improve this investigation.

1 .....

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2 .....

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3 .....

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.....[3]

(b) Fig. 1.2 shows half of a fresh apricot.

magnification ×1

Fig. 1.2

Make a drawing of this fruit, twice the size of the actual fruit.

On your drawing, indicate where the fruit was attached to the parent plant using the letter **P**.

[4]

(c) (i) Ripe fruits contain reducing sugars.

Describe how you could test a sample of fruit to show that it contains reducing sugars. Include **one** safety feature in your method.

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.....[4]

(ii) Describe how you could use this test to compare the reducing sugar content of your juice, **W1**, and the juice of an apricot.

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.....[4]

(d) Fruits, such as apricots, can be preserved by drying them in the sun.

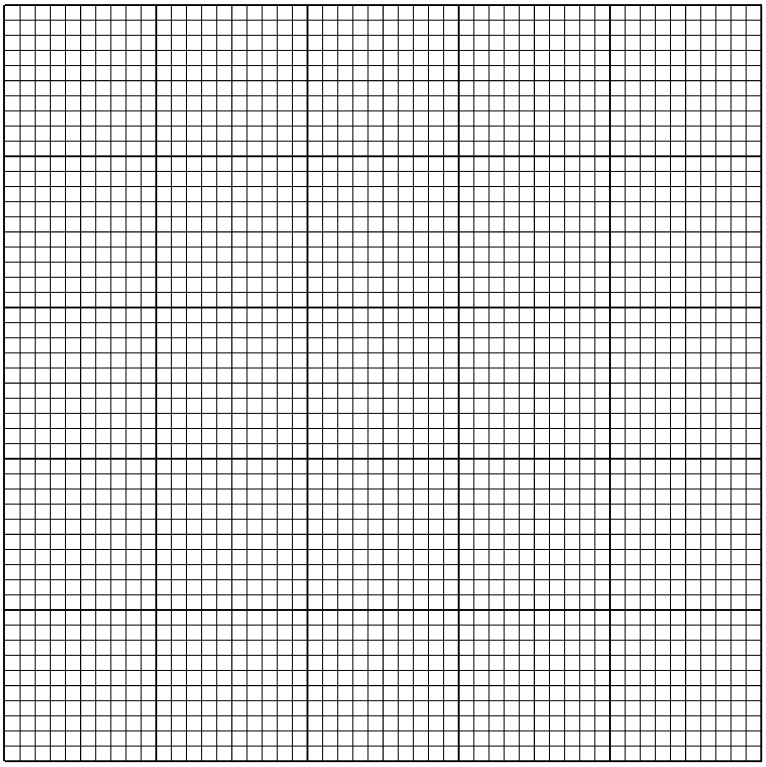
Some students investigated the changes in mass of some fruits as they were left to dry over five days. The results are shown in Table 1.2.

Table 1.2

time/days	mass/g	total loss in mass/g
0	30.0	0.0
1	22.5	7.5
2	17.0	13.0
3	12.0	18.0
4	8.5	
5	7.0	

(i) Calculate the total loss in mass/g for days 4 and 5 and complete Table 1.2. [2]

(ii) Construct a graph to show the total loss in mass of the fruits with time.



[4]

(iii) Suggest why drying fruit helps to preserve it.

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.....[1]

[Total: 32]

2 Fig. 2.1 shows red blood cells from a frog and Fig. 2.2 shows red blood cells from a human, as seen under the microscope.

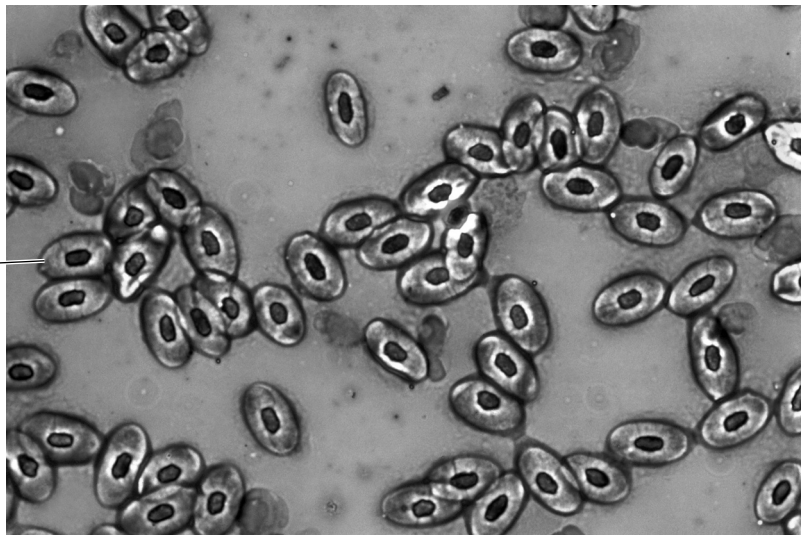

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Fig. 2.1

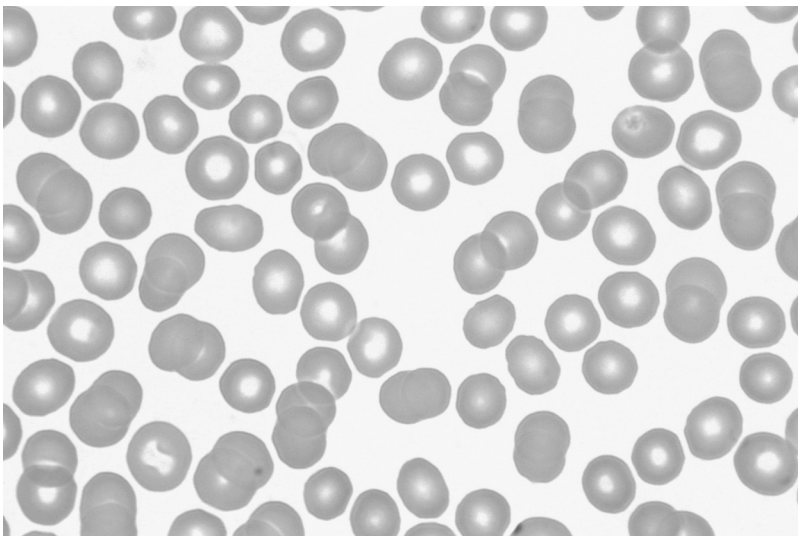

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Fig. 2.2

(a) **(i)** Complete Table 2.1 by describing differences that can be seen between the named features of the blood cells in these two samples.

Table 2.1

feature	frog blood cells [Fig. 2.1]	human blood cells [Fig. 2.2]
shape		
nucleus		

[2]

(ii) The cell labelled **X** in Fig. 2.1 measures 10 mm in length.

Calculate the actual length of cell **X**. Show your working.

actual length = ...[3]

(iii) A human red blood cell is 0.007 mm in diameter.

Calculate the number of times a human red blood cell is larger than the frog red blood cell. Show your working.

.....[1]

(b) Explain how, using features visible in Fig. 2.1 and Fig. 2.2, blood is adapted for transporting oxygen around the body.

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.....[2]

[Total: 8]

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