



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**

0610/51

Paper 5 Practical Test

May/June 2010

1 hour 15 minutes

Candidates answer on the Question Paper.

Additional Materials: As listed in Instructions to Supervisors.

**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 medium (HB) 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	
<b>Total</b>	

This document consists of **8** printed pages.



1 Fig. 1.1 shows sections through some blood vessels, X, Y and Z.

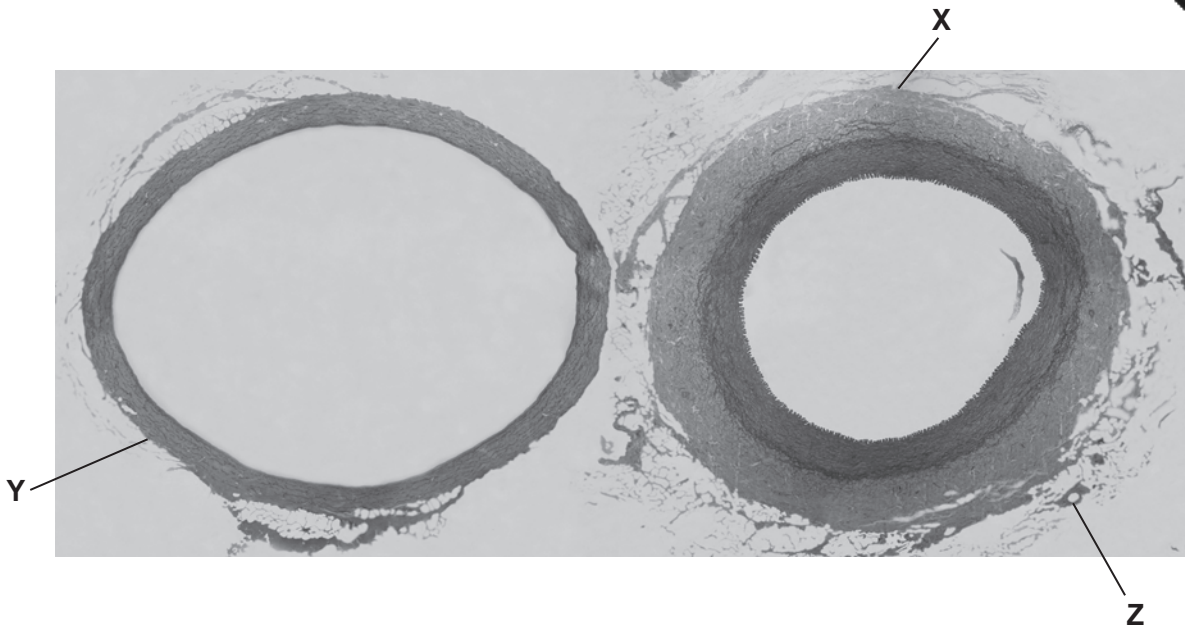


Fig. 1.1

(a) (i) Draw a labelled diagram to show the structure of X.

[5]

(ii) Name the type of blood vessel labelled X.

.....

[1]

- (iii) Compare the blood vessels in Fig. 1.1 to explain how you reached your identification for (a)(ii).

.....

.....

.....

..... [2]

- (b) You are going to investigate the stretching of a section of a blood vessel, using the apparatus as shown in Fig. 1.2.

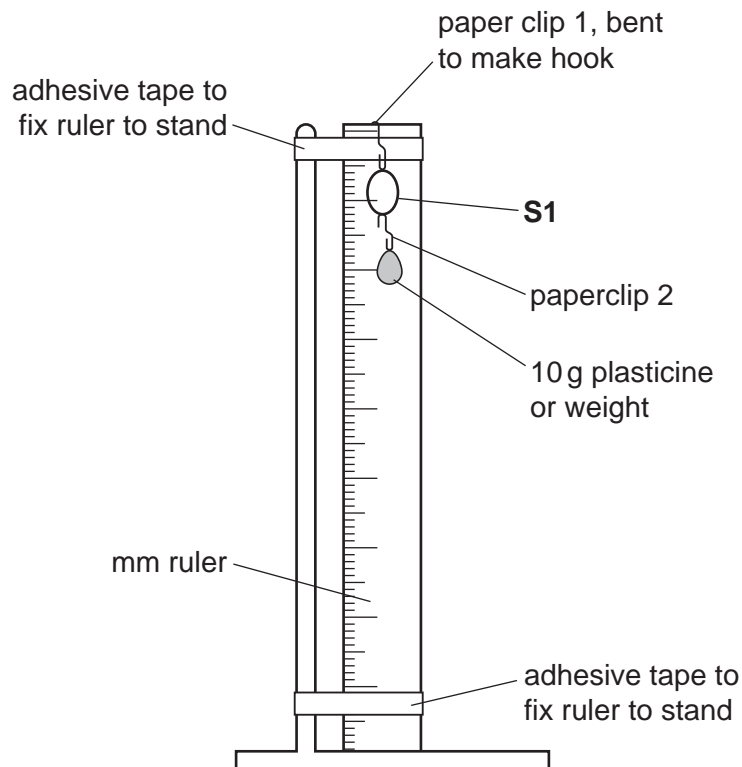


Fig. 1.2

- You are provided with 5 mm of a blood vessel, labelled **S1**.
- Hang the blood vessel **S1**, onto the hook of paperclip 1.
- Hang paperclip 1 and **S1** onto the ruler, as shown in Fig. 1.2.
- Measure the internal diameter in mm of **S1** and record this in Table 1.1 on Page 4.
- Hang one weight (mass 10 g) onto the paperclip 2 then hook this on to **S1**.
- Measure the internal diameter of **S1** and record this measurement in Table 1.1.
- Repeat this procedure until all five weights have been added.

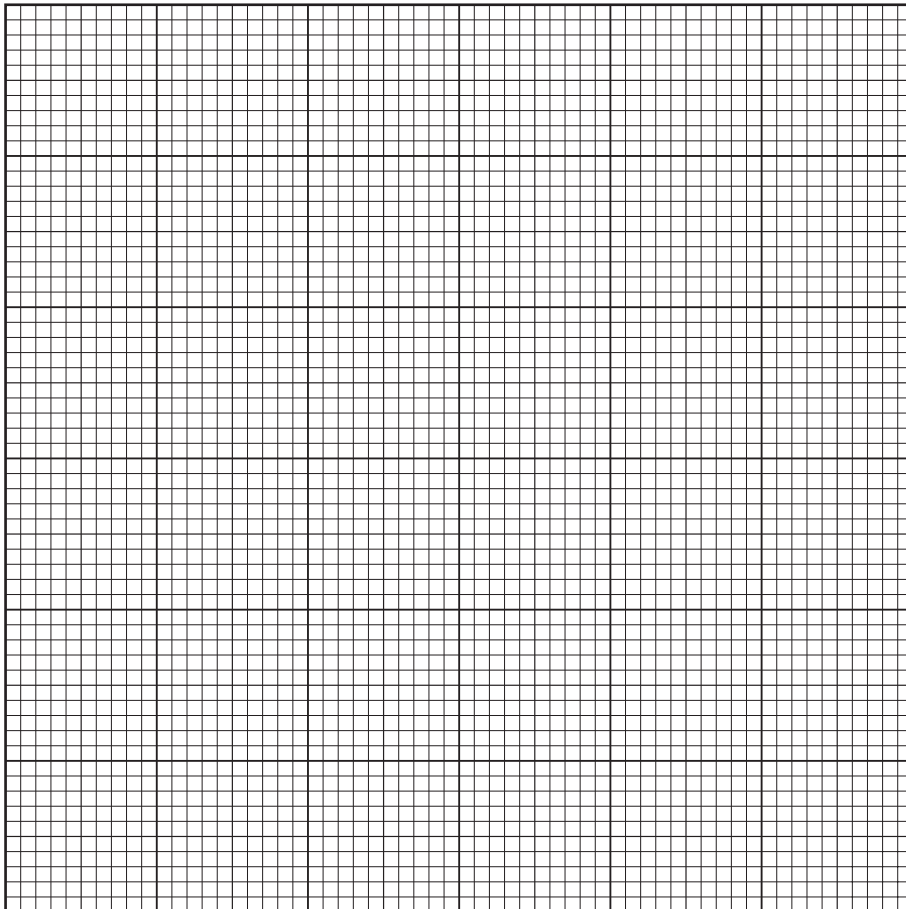
- (i) Complete Table 1.1 by calculating the increase in diameter of the blood vessel. This is determined by subtracting the original diameter from the internal diameter which you have measured.

**Table 1.1**

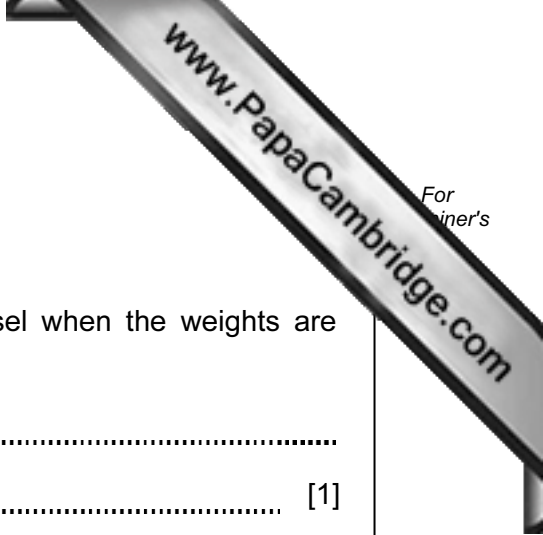
mass of weights / g	internal diameter of S1 / mm	increase in diameter of S1 / mm
0		0
10		
20		
30		
40		
50		

[6]

- (ii) Plot a graph to show the relationship between the mass of weights attached and the increase in diameter of the blood vessel.



[4]



- Detach the weights **and** paper clip 2.

(iii) State what happens to the diameter of the blood vessel when the weights are removed.

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

(iv) Suggest an explanation for your observation in (b)(iii).

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

[Total: 21]

- 2 Potato crops are grown for their carbohydrate content. You are provided with slices of edible tubers of two species.

**S2** is sweet potato, *Ipomoea batatas*

**S3** is Irish potato, *Solanum tuberosum*

- (a) (i) Observe **S2** and **S3**.

Describe two similarities between **S2** and **S3**.

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

- (ii) Complete Table 2.1 to show two differences between **S2** and **S3**.

**Table 2.1**

	<b>S2</b>	<b>S3</b>
difference 1		
difference 2		

[2]

- (b) You are going to investigate the carbohydrate content of these potatoes.

- Cut the slices of **S2** and **S3** into quarters.
- Dip the freshly cut surface of one quarter of **S2** and **S3** into the dish of iodine solution and place onto the white tile.

Record your observations and conclusions in Table 2.2.

**Table 2.2**

	<b>S2</b>	<b>S3</b>
observation		
conclusion		

[2]

The name *sweet potato* suggests that some of the carbohydrate may be in the form of reducing sugar.

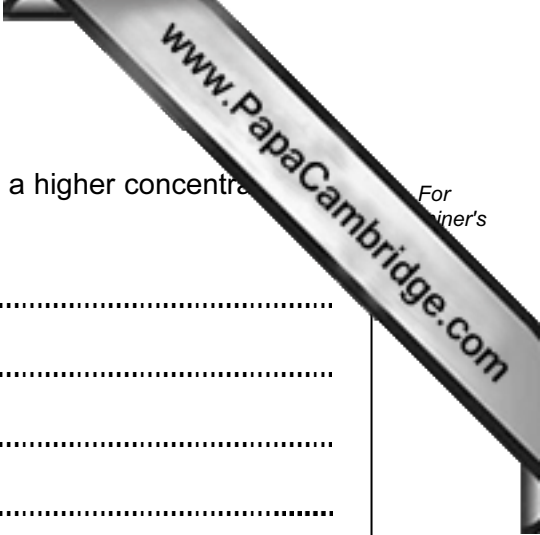
(c) (i) Describe how you would safely test **S2** and **S3** to see which has a higher concentration of reducing sugar.

.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
..... [5]

- Cut one of the remaining pieces of **S2** into smaller pieces.
- Add 5 cm<sup>3</sup> water in a test-tube.
- Shake well and allow the pieces to settle.
- Repeat for **S3** in a separate test-tube.
- Carry out the reducing sugar test on both **S2** and **S3**.

(ii) Comment on the results of your reducing sugar tests.

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



(d) (i) Describe how you could test **S2** and **S3** to see which has a higher concentration of protein.

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

- Cut one of the remaining pieces of **S2** into smaller pieces.
- Carry out a protein test.
- Repeat with **S3**.

(ii) Comment on the results of your protein tests.

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

[Total: 19]