UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME	
CENTRE NUMBER	CANDIDATE NUMBER

2908616538

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	
Total	

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

© UCLES 2010

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

For Examiner's Use

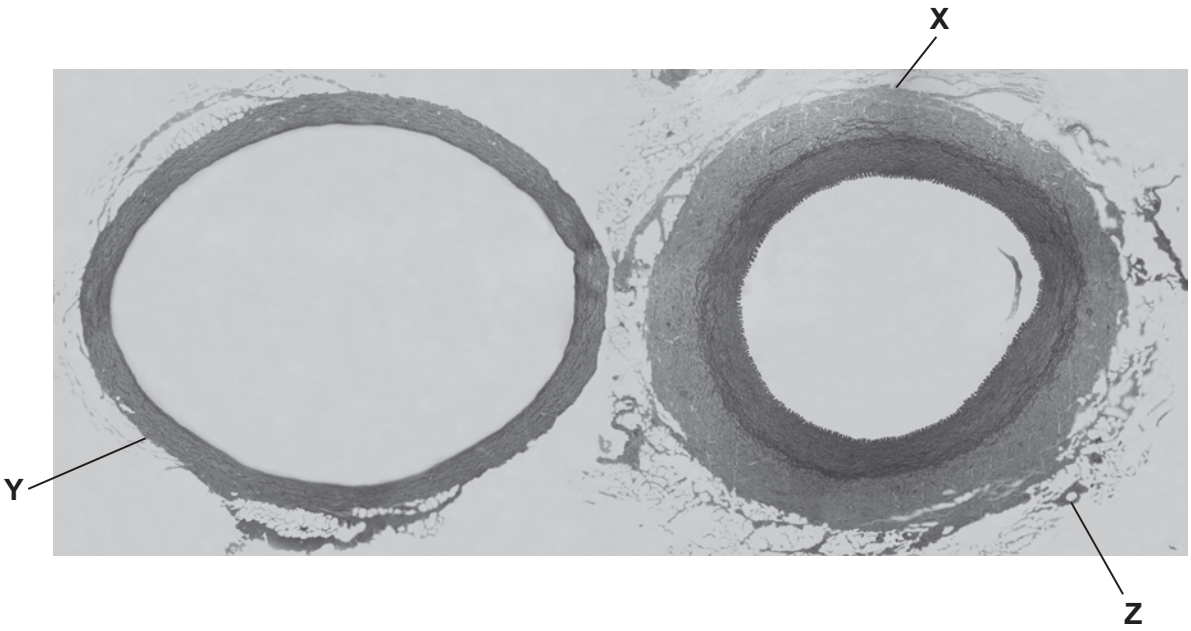


Fig. 1.1

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

[5]

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

..... [1]

For Examiner's Use

(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.

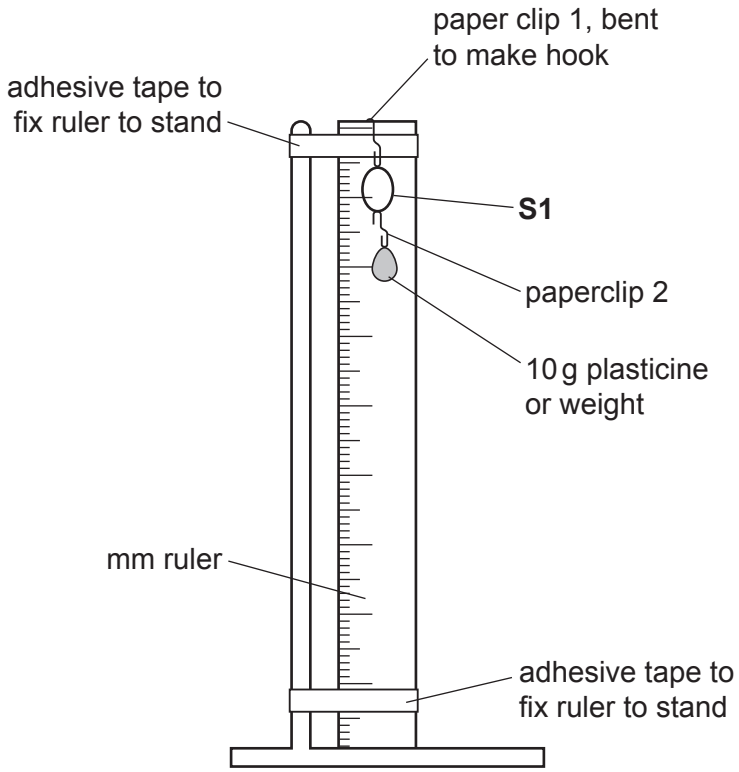


Fig. 1.2

- 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.

© UCLES 2010

For Examiner's Use

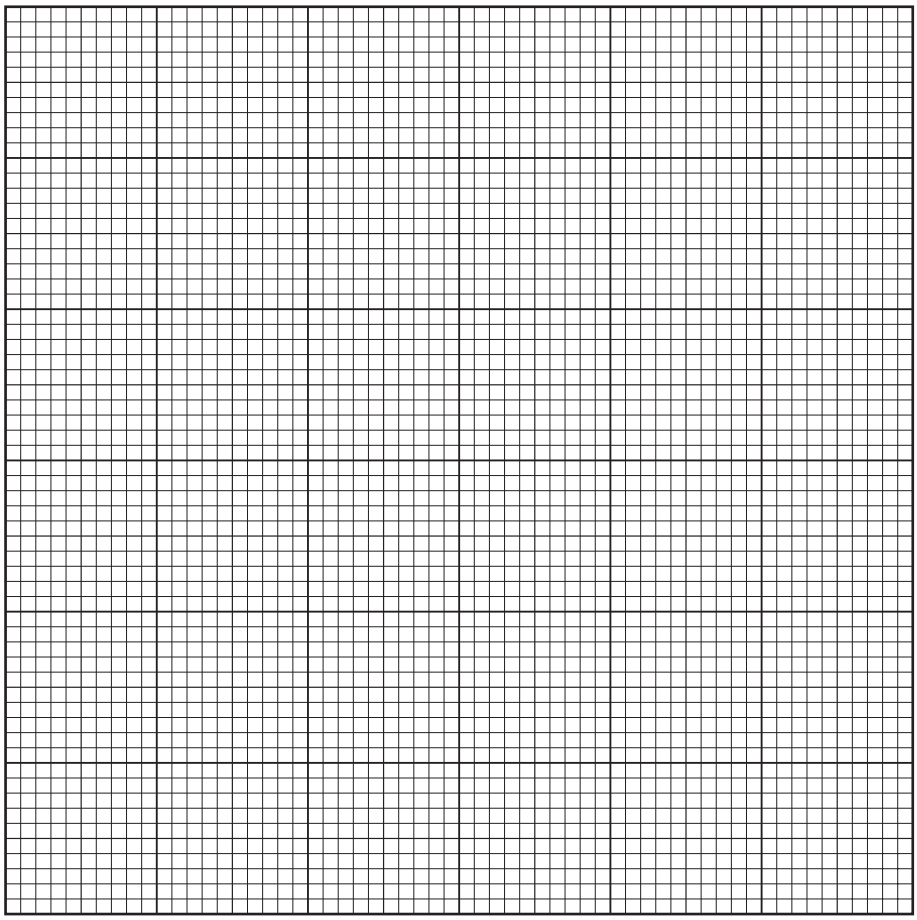
(i) Complete Table 1.1 by calculating the increase in diameter of the blood vessel. This is determined by subtracting the original diameter from the internal diameter which you have measured.

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]

© UCLES 2010

For Examiner's Use

- 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]

For Examiner's Use

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

S2 is sweet potato, *Ipomoea batatus*
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

	S2	**S3**
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

	S2	**S3**
observation		
conclusion		

[2]

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

For Examiner's Use

(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^3 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]

© UCLES 2010

[Turn over

For Examiner's Use

(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]

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

University of Cambridge International Examinations is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.