Name

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS International General Certificate of Secondary Education

BIOLOGY 0610/05

Paper 5 Practical Test

October/November 2004

1 hour

Candidates answer on the Question Paper. No additional Materials are required.

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name in the spaces provided at the top of this page. Write in dark blue or black pen in the spaces provided on the Question Paper. You may use a soft pencil for any diagrams, graphs or rough working. Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer both questions.

The number of marks is given in brackets [] at the end of each question or part question.

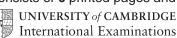
If you have been given a label, look at the details. If any details are incorrect or missing, please fill in your correct details in the space given at the top of this page.

Stick your personal label here, if provided.

FOR EXAMINER'S USE			
1			
2			
TOTAL			

This document consists of 6 printed pages and 2 blank pages.

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1 Introduction

Many plant tissues change colour when exposed to the air. The enzymes that produce the coloured products may be affected by pH.

Investigation

You will investigate the effect of pH on the production of these coloured products formed on the freshly cut surface of a plant tissue.

Read the whole of question 1 section (a) before you begin. You are advised to complete setting up this question immediately as it may take time for these coloured products to develop.

- (a) You are provided with 2 pieces of plant tissue, labelled **W1**, that have been cut before the start of the examination.
 - (i) Use **one** piece of **W1** to compare the colour of the exposed cut surface with the unexposed surface which is in contact with the dish.

Keep this piece of **W1** in the dish for part **(b)**.

colour of exposed surface

colour of unexposed surface[1]

(ii) You have been provided with 2 pieces of universal indicator paper and access to a pH colour chart.

Test the pH of solutions A1 and B1.

Record the colours and pH values in **Table 1.1**.

Table 1.1

	solution				
	A1	B1			
colour					
рН					

[3]

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	3
(iii)	Cut the other piece of plant tissue W1 into two pieces. Place one piece of W1 into each of the dishes labelled A and B .
	Slowly pour solution A1 over the cut surface of W1 in dish A . Repeat this procedure with the tissue in dish B using solution B1 . Observe the colour of the plant tissue after approximately 20 minutes.
	Construct a table and record your observations.
	[3]
(iv)	Describe and explain the effect of pH on the development of the coloured products in this plant tissue.
	[2]
(v)	Oxygen is required for coloured end products to form. Suggest how you might show the need for oxygen to cause the colour change.

- (b) Cut the other piece of W1 saved from (a)(i) into two.
 - (i) Test one piece of **W1** with iodine solution. Record your observations and conclusions in **Table 1.2** below.
 - (ii) Cut the remaining piece of **W1** into smaller pieces and place in a large test-tube. Use the biuret test.

Record your observations and conclusions in Table 1.2 below.

Table 1.2

test	W1				
	observation	conclusion			
iodine solution					
biuret					

[4]

(iii)	Describe briefly how you would carry out a test for simple reducing sugars. State what observation would indicate the presence of a reducing sugar.					
	[3]					
	[0]					

[Total: 21]

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2	Vou bovo	hoon	provided	with a	loof	laballad	W/2
_	You have	been	provided	with a	ı ıeaı	labelled	VVZ.

(a)	(i)	Make a large labelled outline drawing of the whole leaf and show the details of one
		pair of leaflets. Include at least three labels.

		[9]
(ii)	To which group, monocotyledon or dicotyledon, does W2 belong?	
	Describe one feature of W2 which supports your answer.	
		[2]

(b) The electronmicrograph shown in Fig. 2.1 shows a section through part of leaf similar to **W2**.

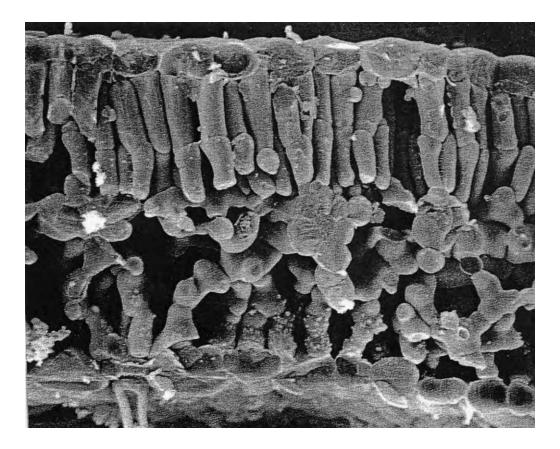


Fig. 2.1

- (i) Name and label on Fig. 2.1, the different layers of cells. Identify clearly those cells which contain chloroplasts. [4]
- (ii) Name and label a feature on Fig. 2.1 that enables gaseous exchange to occur. [1]
- (iii) The section of the leaf is magnified by \times 200. Calculate the thickness of the leaf. working

thickness of leaf[3]

[Total: 19]

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Question 2 Fig. 2.1 Biophotos Associates.

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