



# UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS International General Certificate of Secondary Education

BIOLOGY Paper 6 Alterna	ative to Practical	Oct	0610/61 tober/November 2012 1 hour
CENTRE NUMBER		CANDIDATE NUMBER	
CANDIDATE NAME			

#### **READ THESE INSTRUCTIONS FIRST**

No Additional Materials are required.

Candidates answer on the Question Paper

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 pencil for any diagrams or graphs.

Do not use staples, paper clips, highlighters, 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 Exam	iner's Use
1	
2	
3	
Total	



1 Some students compared the metabolism of two yeast mixtures in test-tubes **W1** and **W2**, using the apparatus shown in Fig. 1.1. Both mixtures contained the same concentration of sucrose.

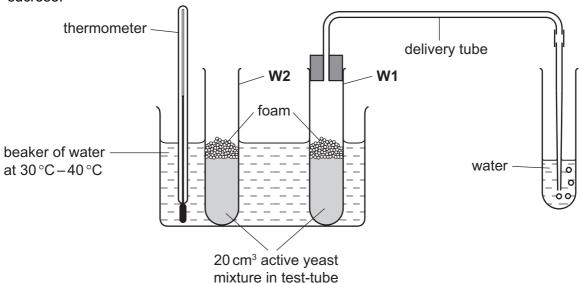


Fig. 1.1

The apparatus was left for two minutes. After this period, the number of gas bubbles released from the delivery tube was counted for two minutes. This number was recorded as **trial 1** in Table 1.1.

The yeast mixture was shaken and the number of bubbles was recorded for two more minutes as **trial 2**. This was repeated for **trial 3**.

The whole procedure was then repeated using test-tube **W2**.

The results for all three trials for test-tube **W2** were recorded in Table 1.1.

Table 1.1

vocat mixtura	number of b	ubbles of gas released ir	two minutes
yeast mixture	trial 1	trial 2	trial 3
W1	5	3	2
W2	20	15	10

(a) Gas bubbles are produced in this experiment.

(i)	State which	metabolic	process	is being	carried	out by	/ the	yeast	cells	to	produce
	this gas.										

[1]

(ii) Name this gas. [1]

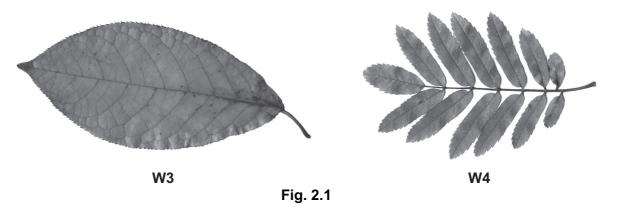
	(iii)	Describe a test for this gas and the result that you would expect.
		[2]
(b)		gest why the test-tubes <b>W1</b> and <b>W2</b> were placed in a beaker of warm water during experiment.
	•••••	[2]
(c)		scribe <b>and</b> explain any differences observed in the number of bubbles of gas ased.
		[3]

d)		ces of error in the <b>method</b> of this investigation. improve the method to reduce <b>each</b> source of error.	
	source of error		
	improvement		
	source of error		
	improvement		
	•	[4]	
		[Total: 13]	

Question 2 begins on page 6.

2 Fig. 2.1 shows the upper surface of two leaves, **W3** and **W4**.

For Examiner's Use



(a) Make a large, labelled drawing of leaf W3.

[4]

(b)	Car	efully observe leaf <b>W3</b> and leaf <b>W4</b> in Fig. 2.1.
		scribe <b>one similarity</b> and <b>two differences</b> that you can see. Do <b>not</b> include size in r comparison.
	(i)	similarity
		[1]
	(ii)	differences
		1
		2
		[2]

Fig. 2.2 shows a photomicrograph of a section of a leaf similar to **W3**.

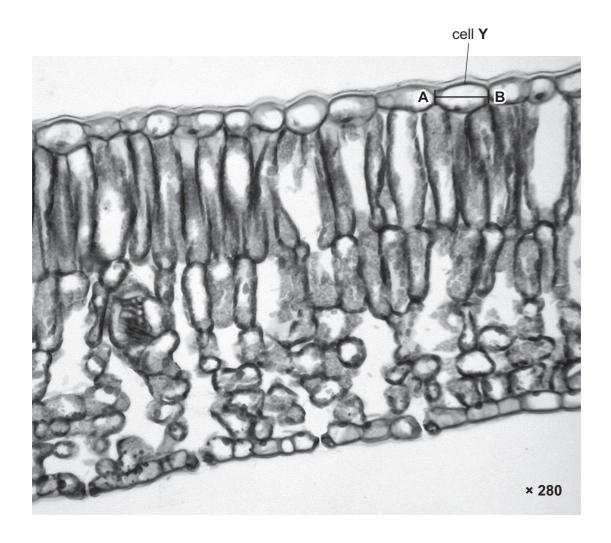


Fig. 2.2

- (c) (i) On Fig. 2.2, draw a line to label a photosynthetic cell in the palisade layer. [1]
  - (ii) Draw arrows on Fig. 2.2 to show the pathway that carbon dioxide gas must take to reach the photosynthetic cell labelled in (c)(i) from the air outside the leaf. [2]

(d)	Measure the length, from ${\bf A}$ to ${\bf B}$ , of cell ${\bf Y}$ on ${\bf F}$	ig. 2.2.	
	Record your measurement.		
	length from <b>A</b> to <b>B</b>	mm	
	Calculate the actual length of cell Y.		
	Show your working.		
	actual length of cell Y	mm	[3]

When leaves die, they fall from the tree and are eventually decomposed.

For Examiner's Use

Some students investigated the decomposition of samples of leaves. They made drawings and weighed the samples at intervals over a period of two years.

Table 2.1 shows the results of this investigation.

Table 2.1

time / months	mass of leaves in sample / g	appearance of one leaf in the sample.
0	42.5	
6	46.0	
12	32.5	
18	16.0	
24	7.5	

(i) Describe and explain the changes in appearance of the leaves during th years.	e two
	[3]

(ii)	urements from Table 2.1 to plot a graph to show how the rhange with time.	nass of the

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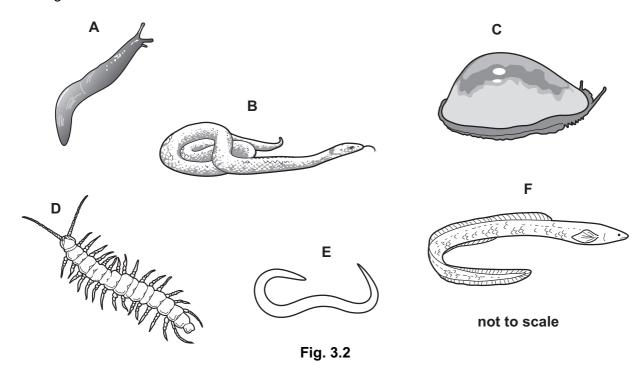
[4]	
Describe the results for the change in mass shown on the graph.	(iii)
[3]	
[Total: 23]	

**3** Fig. 3.1 shows an invertebrate animal.



Fig. 3.1

Fig. 3.2 shows the external features of six other animals.



(a) Give the letters of **two** animals that belong to the same group as the invertebrate shown in Fig. 3.1.

'	
2	[2]

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(b)	Desc	cribe <b>two</b> similarities, <b>visible</b> in Fig. 3.2, between animal <b>B</b> and animal <b>F</b> .		E
	1			
	2			
			[2]	]
			[Total: 4]	,

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