Name

# CAMBRIDGE INTERNATIONAL EXAMINATIONS International General Certificate of Secondary Education

BIOLOGY 0610/06

Paper 6 Alternative to practical

May/June 2003

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 on all the work you hand in. 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 all 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 Exam	iner's Use
1	
2	
3	
4	
TOTAL	

This document consists of 9 printed pages and 3 blank pages.

1 Three different dough mixtures, samples A, B and C are prepared using the same quantity of flour and water. Each sample of dough is carefully mixed, kneaded, shaped and placed in separate measuring cylinders and kept in a warm place.

Sample A contains warm water, sugar, flour and yeast.

Sample **B** contains warm water, sugar and flour.

Sample **C** contains warm water, sugar, flour, yeast, and substance **X**.

The highest level of the dough is marked on the side of each measuring cylinder, as shown in Fig. 1.1.

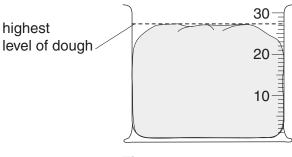


Fig. 1.1

(a) Suggest **two** other factors which should be kept constant to ensure that the results for the samples can be compared.

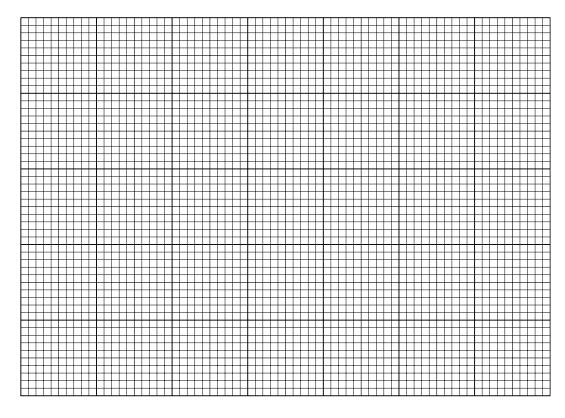
1	
2	[2]

**(b)** At 20 minute intervals, the volume of each dough sample is measured and recorded. The results are shown in Table 1.1.

Table 1.1

time/min	volume of dough/cm <sup>3</sup>		
	sample A	sample <b>B</b>	sample C
0	12	12	12
20	18	12	20
40	26	12	32
60	34	13	41
80	39	13	48
100	45	13	48
120	48	14	48

(i) On the grid opposite, plot the data shown in Table 1.1 for samples A, B and C as three curves on one set of axes.



[5]

(ii)	Describe the curves you have drawn for the three samples.		
	[3]		
(iii)	Use your graph to find when there is the greatest difference in volume between samples ${\bf A}$ and ${\bf C}$ .		
	[1]		

an explanation for this difference.	IV)
[2]	
[2]	
The volume of sample <b>A</b> changed differently to the volume of sample <b>C</b> . Suggest an explanation for this difference.	(v)
[2]	
[Total : 15]	

2 Fig. 2.1 shows three stages in the germination of a grain of maize.

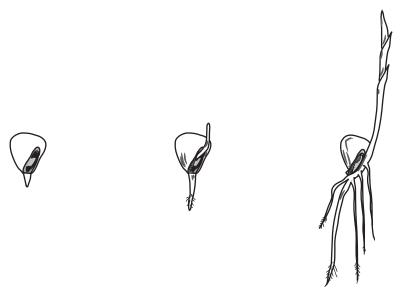


Fig. 2.1

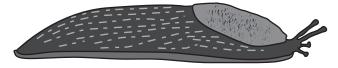
(a)	Name two conditions that are necessary for the successful germination of a seed, other than the presence of water.
	1[1]
(b)	Describe an investigation that you could carry out to show the need in seed germination for one of the conditions you named in <b>(a)</b> .
	[3]
	[Total : 4]

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[4]

**3** Fig. 3.1 shows the external appearance of animal **A**.



animal A

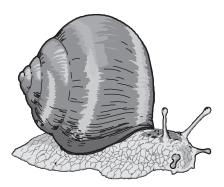
Fig. 3.1

(a) (i) Make a large, labelled drawing of animal A.

Label **two** features that are characteristic of this group of animals.

(ii)	Measure the length of animal ${\bf A}$ in Fig. 3.1 and in your drawing. Calculate the magnification of your drawing.		
	length of animal <b>A</b> : in Fig. 3.1		
	in drawing		
	magnification[2]		

Fig. 3.2 shows the external appearance of animal  ${\bf B}$ , which is classified in the same group as animal  ${\bf A}$ .



animal **B** 

Fig. 3.2

(iii)	State one similarity which indicates that these two animals are classified same group and state one difference between them.	in the
	similarity	
	difference	[2]
(iv)	Name the group to which animals <b>A</b> and <b>B</b> belong.	
		[1]
	[To	otal : 9]

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4 The apparatus shown in Fig. 4.1 was set up under bright light for a period of five hours. At the start the apparatus was completely full of water. During this time, a gas was collected at the top of the graduated tube.

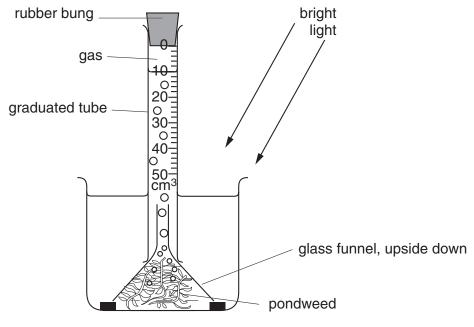


Fig. 4.1

(i)	How would you show this gas was oxygen?
	[1]
(ii)	Name the process within the plant responsible for the production of oxygen.
	[1]
(iii)	Determine the volume of gas collected in five hours and the rate of gas production per hour.
	volume
	rate[2]
(iv)	How would you use this apparatus to obtain reliable results to show the effect of differing light intensities on the production of oxygen?
	[2]

**(b)** The pondweed was placed in hydrogencarbonate indicator solution, which was red in colour when the tube was set up. The tube was left for five hours in bright light, as shown in Fig. 4.2.

(Hydrogencarbonate indicator is purple in alkaline conditions, red in neutral conditions and yellow in acidic conditions.)

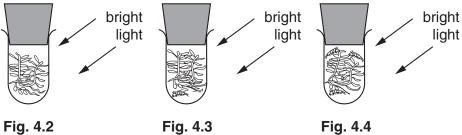


	Fig. 4.2	rig. 4.3	rig. 4.4
(i)	Suggest what colour you bright light and give an ex	•	be in Fig. 4.2 after five hours in
	colour		
	explanation		
			[2]
(ii)	One water shrimp was intagain, the tube was place		be with pondweed, <b>Fig. 4.3</b> , and, ours.
	Suggest what colour you	might observe and give	an explanation for this.
	colour		
	explanation		
			[2]
(iii)	Three water shrimps wer and, again, the tube was		ar tube with pondweed, <b>Fig. 4.4</b> , five hours.
	Suggest what colour you	might observe and give	an explanation for this.
	colour		
	explanation		
			[2]

[Total : 12]

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