

Candidate Name _____

Centre Number

Candidate
Number

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**International General Certificate of Secondary Education
UNIVERSITY OF CAMBRIDGE LOCAL EXAMINATIONS SYNDICATE**

BIOLOGY

0610/6

PAPER 6 Alternative to Practical

MAY/JUNE SESSION 2000

1 hour

Candidates answer on the question paper.
No additional materials are required.

TIME 1 hour

INSTRUCTIONS TO CANDIDATES

Write your name, Centre number and candidate number in the spaces at the top of this page.

Answer **all** questions.

Write your answers in the spaces provided on the question paper.

Use a sharp pencil for your drawings. Coloured pencils or crayons should not be used.

INFORMATION FOR CANDIDATES

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

You may use a calculator.

FOR EXAMINER'S USE

1	
2	
3	
4	
TOTAL	

This question paper consists of 11 printed pages and 1 blank page.

1 Fig. 1.1 is a photograph of flower **A**, cut in half to show its structure.



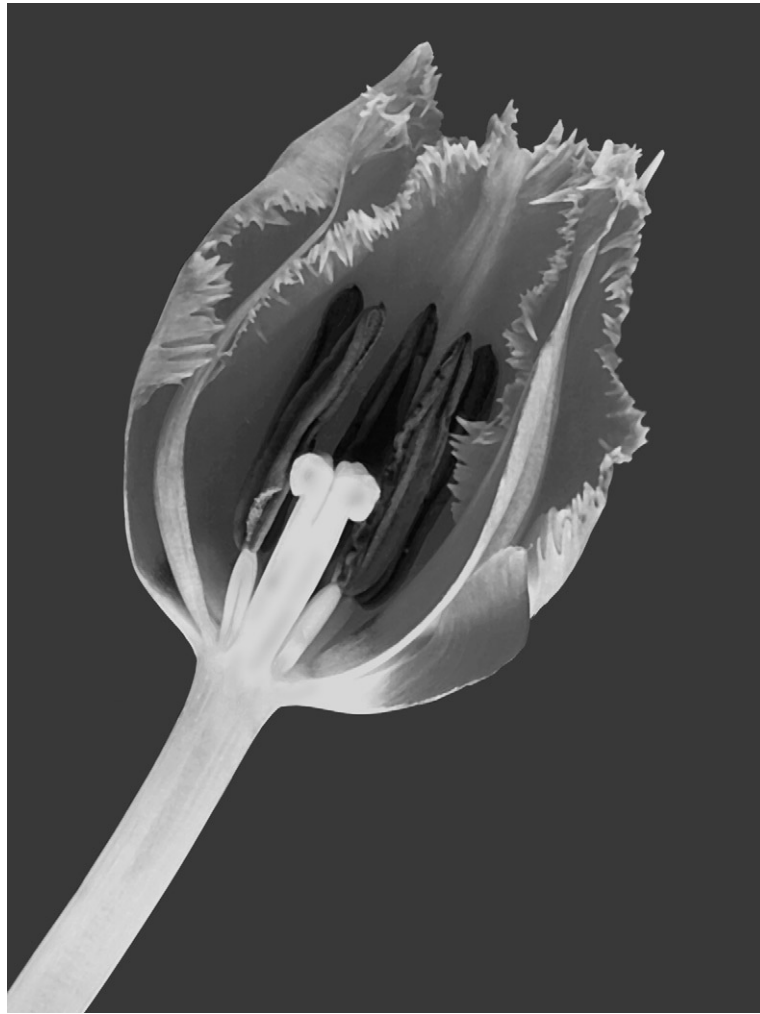
Flower **A**

Fig. 1.1

- (a) Make a large, labelled drawing of the half-flower in Fig. 1.1, to show details of its structure.

[6]

Fig. 1.2 shows another flower of a different species, flower **B**.



Flower **B**

Fig. 1.2

(b) Construct a table, in the space below, to show **four visible** differences between flower **A** and flower **B**.

[question 2 starts on page 6]

- 2 Samples of animals living on the surface of logs in a woodland were collected.

The animals found on the top and sides were brushed carefully into a tray.

The animals found on the underside of the logs were brushed carefully into a second tray.

The animals were identified, sorted into groups and counted. This information was recorded in Table 2.1.

Table 2.1

animal group	feeding category	number of animals	
		top and sides of log	underside of log
snails	herbivores	4	3
mites	herbivores	12	9
larvae of flies	herbivores	1	8
centipedes	carnivores	0	5
spiders	carnivores	2	7
beetles	carnivores	2	4
woodlice	detritivores*	2	10
millipedes	detritivores*	1	4

* Detritivores are animals that eat dead matter such as fallen leaves.

- (a) (i) Complete Table 2.2 to show the numbers of animals in each feeding category expressed as a percentage of the total number of animals found on the underside of the logs.

Table 2.2

feeding category	number of animals found on the underside of the logs	percentage %
herbivores	20	
carnivores	16	
detritivores	14	
total	50	100

[2]

- (ii) Using Fig. 2.1, construct a pie chart to show the proportion of herbivores, carnivores and detritivores collected from the underside of the logs.

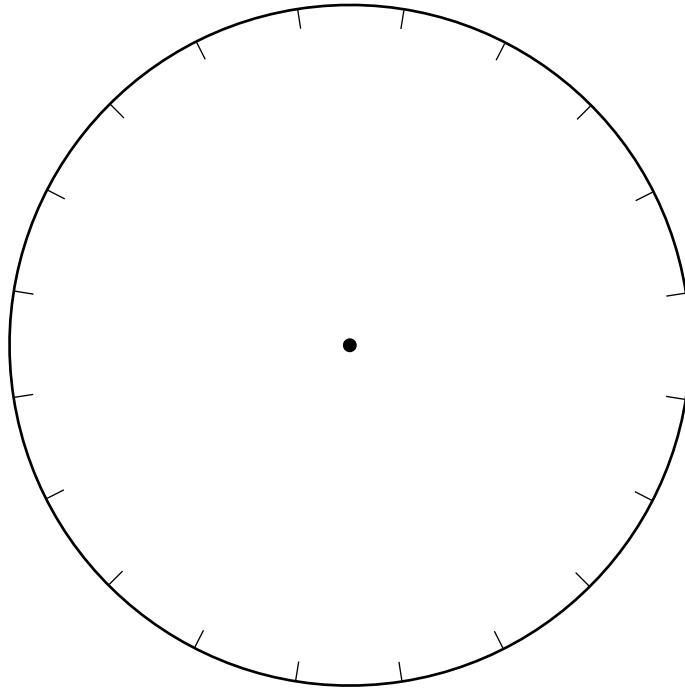


Fig. 2.1

[2]

- (b) Suggest **two** reasons why most animals were found on the underside of the logs.

1.

 2.
[2]

- (c) Describe an investigation you could carry out to compare the number of animals living amongst fallen leaves in two different woodland habitats.

.....

[4]

[Total : 10]

- 3 Fig. 3.1 shows the apparatus that was used to investigate the activity of yeast in a glucose solution.

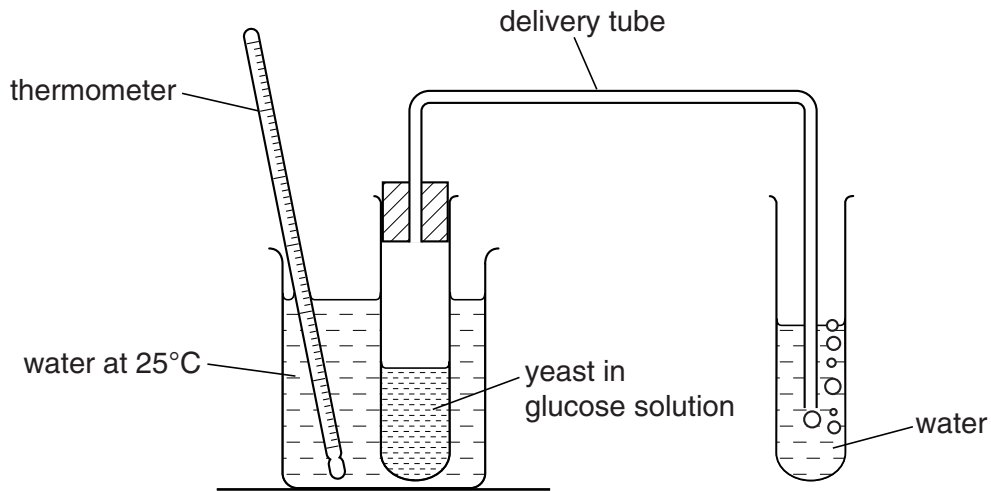


Fig. 3.1

The number of bubbles released in one minute was counted. This was repeated another four times.

The temperature in the water bath was then raised to 35 °C and five more counts were made.

Table 3.1

	number of bubbles released in one minute	
	25 °C	35 °C
1	11	17
2	12	19
3	14	20
4	13	16
5	10	18
total		
mean (average)		

(a) (i) Complete Table 3.1 to show the totals and mean numbers of bubbles released at each temperature. [2]

(ii) Name the physiological process in yeast which is investigated in this experiment.[1]

(iii) State the effect of raising the temperature on the activity of yeast.
Explain your answer.
Effect
Explanation
.....[3]

(b) (i) Name the gas present in the bubbles.

(ii) Describe a test you could use to identify this gas.
.....[2]

(c) Explain why it is better to leave the apparatus for a few minutes at each temperature before beginning to count the bubbles.
.....
.....
.....[2]

[Total : 10]

- 4 An experiment was carried out to investigate the effect of different concentrations of sucrose solution on the length of potato strips.

Five test-tubes were set up, each containing a different concentration of sucrose solution. Another tube was set up containing the same volume of distilled water.

A strip of potato tissue was placed in each tube. The strips were of equal size and as shown in Fig. 4.1.

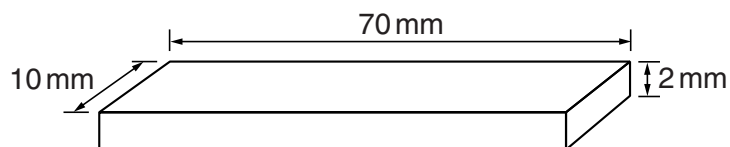


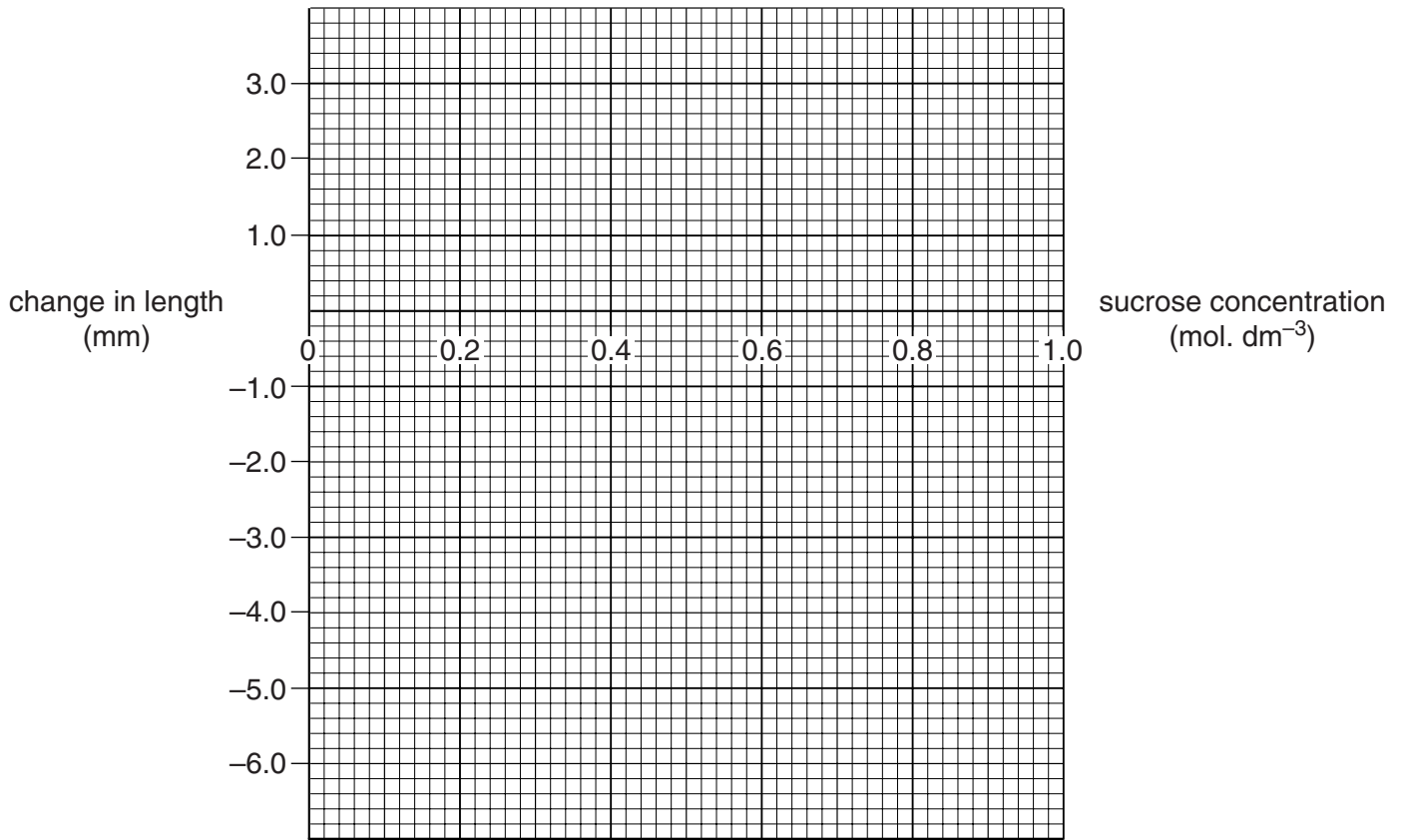
Fig. 4.1

These strips were completely covered by the solutions and were left in the tubes for 30 minutes. The potato strips were removed and measured. The results are shown in Table 4.1.

Table 4.1

concentration of sucrose solution (mol dm^{-3})	initial length (mm)	final length (mm)	change in length (mm)
0	70	73.0	
0.2	70	71.5	
0.4	70	69.0	
0.6	70	67.0	
0.8	70	66.0	
1.0	70	64.5	

- (a) (i) Complete Table 4.1 to show the change in length of each strip. [1]
- (ii) Plot the changes in length against the concentration of sucrose solution on the axes provided. Join the points using ruled lines.



[3]

- (b) (i) What conclusions can be drawn from these results?

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

- (ii) Name the process that has taken place to bring about these changes in the lengths of the potato strips.

.....[1]

(c) State **two** improvements to this experiment which would increase the reliability of these results.

1.

.....

2.

.....[2]

[Total : 10]