

Candidate Name _____

Centre Number

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**International General Certificate of Secondary Education
CAMBRIDGE INTERNATIONAL EXAMINATIONS**

BIOLOGY

PAPER 5 Practical Test

0610/5

OCTOBER/NOVEMBER SESSION 2002

1 hour

Candidates answer on the question paper.

Additional materials:

As listed in Instructions to Supervisors

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

FOR EXAMINER'S USE

1	
2	
TOTAL	

This question paper consists of 8 printed pages, 3 blank pages and a Supervisor's Report.



1 You are provided with specimen **X**, which is part of a potato plant.

- (a) (i) Make a large, labelled drawing of specimen **X** to show as many external features as possible.

[5]

- (ii) Describe the part played by specimen **X** in the life of the potato plant.

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.....[2]

- (iii) State **one** visible feature that enables you to identify this structure as a stem.

.....[1]

- Cut specimen **X** into two halves.
- From one half, cut a piece 4 cm x 1 cm x 1 cm without any peel.
- **Put on the safety eye protectors provided. Solution Y is a skin irritant. Do not get it on your hands. If it accidentally splashes on to your skin, wash it off with plenty of cold water.**
- Finely chop this piece on the white tile and carefully transfer the chopped tissue to a boiling tube.
- Place the boiling tube in a rack, pour in 5 cm³ cold water and shake the contents.
- Using a syringe, draw up 5 cm³ of solution **Y** from the container and add it to the mixture.
- Place the syringe on the paper towel after use.
- **Do not shake the mixture.**
- Immediately mark the level of the contents of the boiling tube, as shown in Fig. 1.1.
- Call this mark zero.

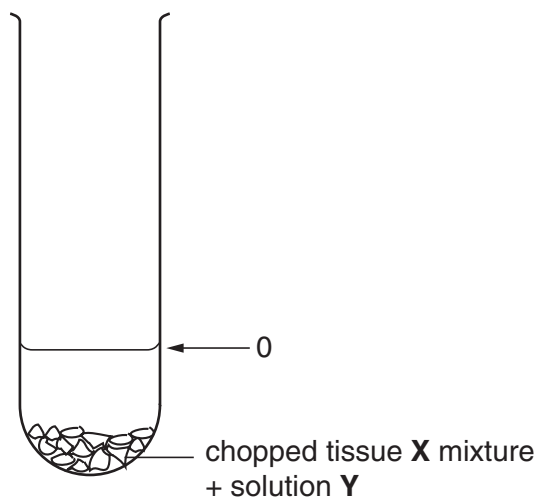


Fig. 1.1

- Start the stop clock and observe what happens to the contents of the boiling tube for two minutes.
- After two minutes, measure in millimetres the level of the froth (bubbles) in the boiling tube from the zero mark to the top of the bubbles.

(b) (i) Record this value.

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(ii) Describe what you observed over the two minute period.

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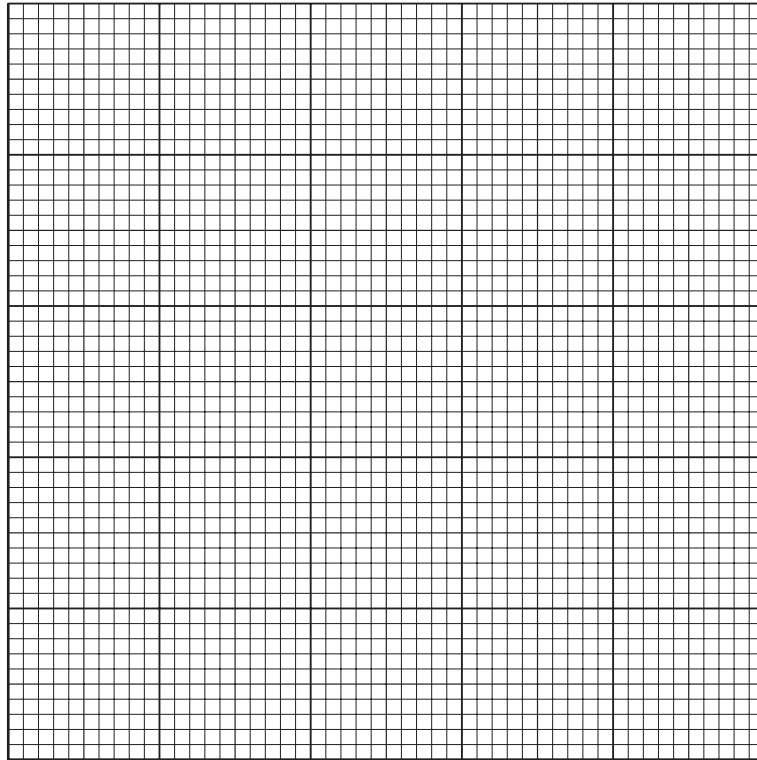
.....[2]

- (c)
- Cut a similar 4 cm x 1 cm x 1 cm piece from the other half of specimen **X**.
 - Cut this into four pieces, each 1 cm x 1 cm x 1 cm. Do **not** chop these four pieces.
 - Put all four pieces into a clean boiling tube and repeat the procedure as in (a)(iii).
 - Measure the height, in millimetres, of the froth, as before.

Record this value.

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- (d) (i) On the grid, construct a bar graph from your results.



[4]

- (ii) Suggest explanations for your results.

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.....[4]

- (e) (i) Devise, but do **not** carry out, an experiment to determine if the production of froth is controlled by an enzyme in specimen **X**.

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.....[3]

- (ii) Explain the results that you would expect.

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.....[2]

[Total : 23]

- 2 Fig. 2.1 is a diagram to show the teeth in the upper and lower jaw of an adult human.

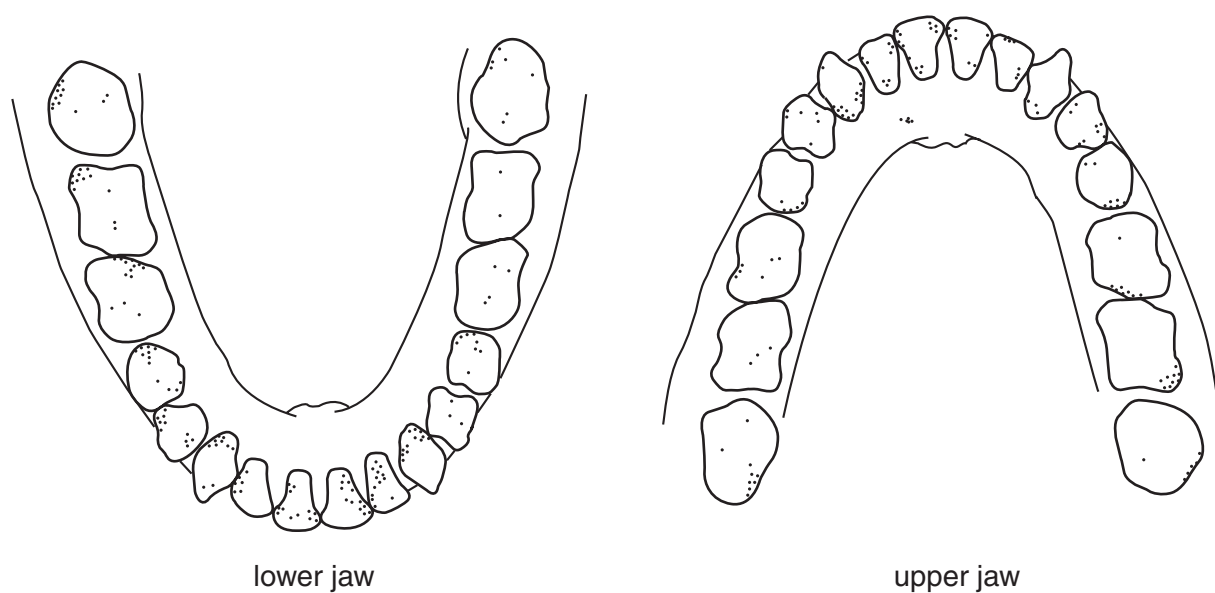


Fig. 2.1

- (a) On Fig. 2.1,

- (i) label an incisor,
a canine,
a premolar,
a molar;

[2]

- (ii) mark with an **X** any tooth or teeth that are missing from your mouth, but that are present in Fig. 2.1. Use the mirror, if necessary.

- (b) With reference to Fig. 2.1, complete the table to show the number of each type of tooth in the upper jaw and the lower jaw of an adult human.

	incisors	canines	premolars	molars
number of teeth in upper jaw				
number of teeth in lower jaw				

[1]

- (c) Complete the table to show the number of each type of tooth in your upper and lower jaw.

	incisors	canines	premolars	molars
number of teeth in upper jaw				
number of teeth in lower jaw				

[1]

- (d) Explain differences, if any, between the number of teeth counted in Fig. 2.1 and the number of teeth counted in your own mouth. If there are no differences, account for this.

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.....[2]

- (e) Using the mirror, study the external appearance of one of your incisors and a canine, as seen from the front.

- (i) In the space below, draw one incisor and one canine, as seen from the front, to show the differences in the relative shape and size of these teeth.

[3]

- (ii) Describe how the differences shown in your drawings and observations are linked to the differences in function of these two types of teeth.

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.....[4]

- (f) (i) On Fig. 2.1, use a ruler to determine the approximate surface area of the top surface of one of the molars. On Fig. 2.1, mark with a letter **Y** the molar used in your calculation.

surface area:[1]

- (ii) Explain how the surface area of the tops of the molars assists in the function of these teeth.

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.....[3]

[Total : 17]

- 1 Was any difficulty experienced in providing the necessary material? If so, give brief details.
- 2 Did the candidate experience any difficulty during the examination as a result of faulty material? If so, give brief details.
- 3 Did the candidate suffer any accidents with apparatus or materials? If so, give brief details.
- 4 Please state any other information that is likely to assist the Examiner, especially if this cannot readily be discovered from the answers.

The preparation of the practical examination has been carried out so as to fully maintain the security of the examination.

Name (in block capitals)

N.B. If scripts are required by CIE to be despatched in more than one envelope, it is essential that a copy of the relevant Supervisor's Results (when requested), the Supervisor's Report and the appropriate seating plan are sent inside **each envelope**.