Centre Number	Candidate Number

Candidate Name _____

International General Certificate of Secondary Education
CAMBRIDGE INTERNATIONAL EXAMINATIONS

BIOLOGY 0610/5

PAPER 5 Practical Test

MAY/JUNE 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 **both** questions.
Write your answers in the spaces provided on the question paper.
Use sharp pencils 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 7 printed pages and a Supervisor's Report.

University of Cambridge
Local Examinations Syndicate

[Turn over

You must start with Question 1, set up the experiment, and then go on to Question 2, leaving 20 minutes to complete Question 1.

1 You are provided with a mixture of yeast and sucrose solution in a small container, labelled 'yeast and sucrose solution'.

You are also provided with a short length of Visking tubing tied at one end (knot 1). This has already been soaked in water.

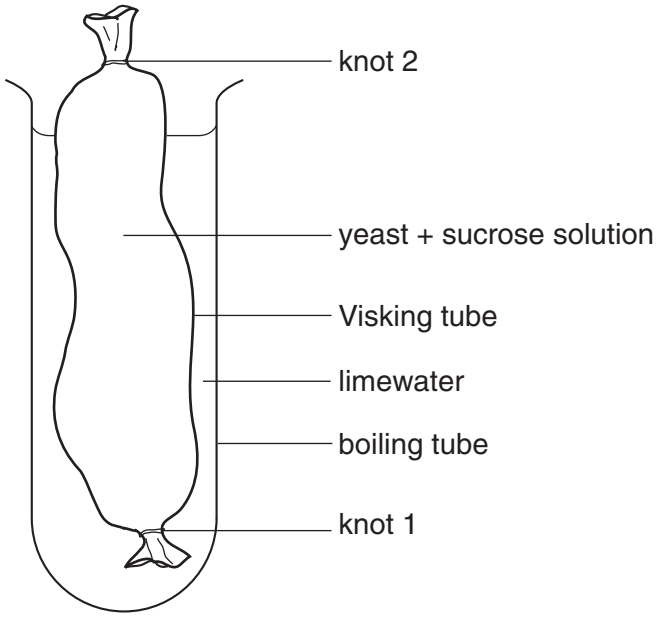


Fig. 1.1

- Pour sufficient of the yeast and sucrose solution to almost fill the Visking tubing and tie the open end tightly with thread (knot 2).
- Observe the volume and the appearance of the tube.
- Wash the outside of the Visking tubing under running water.
- Place the Visking tubing in a boiling tube and then fill the boiling tube with limewater to just below knot 2, as shown in Fig. 1.1.

(a) (i) State the colour of the limewater that you poured into the boiling tube.

.....[1]

Leave the experiment for at least 20 minutes and go on to Question 2.

After 20 minutes

- Gently move the Visking tube up and down in the boiling tube three times.

(ii) State the colour of the limewater.

.....[1]

- Examine carefully the Visking tube.

(b) State any change in volume observed.

.....[1]

- Transfer the Visking tube to a small beaker and cut a hole in the tube so that the contents are released into the beaker.

(c) Describe the appearance and smell of the contents.

appearance .....

.....

smell .....

.....[2]

(d) Describe the reactions that have taken place in the Visking tube.

.....

.....

.....

.....

.....

.....

.....

.....[5]

(e) A student tested the limewater remaining in the boiling tube after the experiment for reducing sugar and protein.

(i) Complete Table 1.1.

Table 1.1

	Benedict's test for reducing sugar	biuret test for protein
colour of the solution		blue
conclusion	reducing sugar present	

[2]

(ii) Explain how sucrose was converted into reducing sugar in the Visking tube.

.....

.....

.....[2]

(iii) Explain why reducing sugar was present in the boiling tube.

.....

.....

.....[2]

(f) Explain why, when this experiment was carried out at 80 °C, neither the colour of the limewater, nor the colour of the Benedict's solution changed.

.....

.....

.....

.....

.....[3]

[Total : 19]

2 You are provided with two seedlings, **A** and **B**.

Seedling **A** has been grown in the light and seedling **B** has been grown in the dark.

- Place both seedlings on a piece of white paper.

(a) Draw the **shoots** of seedlings **A** and **B**. Labels are **not** required.

seedling **A** seedling **B** [5]

(b) Record three visible differences between the shoots of seedlings **A** and **B**.

shoot of seedling **A**	shoot of seedling **B**
1.	.....
.....	.....
2.	.....
.....	.....
3.	.....
.....	.....[3]

(c) Study seedling **A** and state two visible features that enable you to identify it as a dicotyledon.

1. .....

.....

2. .....

.....[2]

[Turn over

(d) You are provided with a soaked seed from the same species of plant.

Using a hand lens, observe and then draw and label

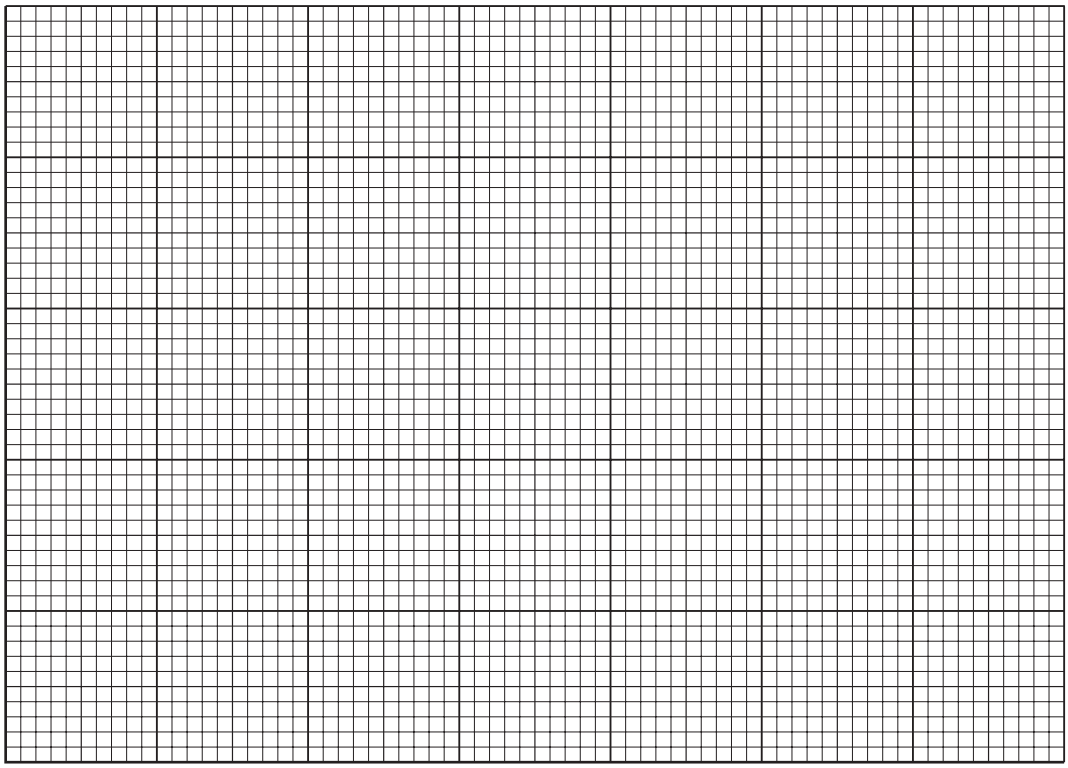
(i) the external appearance;

(ii) the internal structure of this seed.

[6]

(e) You are provided with another dicotyledonous shoot, **C**.

- Remove a leaf from shoot **C**.
- Place the leaf on the grid on page 7 and draw an outline of it.



(i) Using the outline, calculate the area of the leaf and explain how you arrived at your answer.

explanation .....

.....

.....

.....

answer .....

Enter this value in Table 2.1. [3]

(ii) Count the total number of leaves on shoot **C**, including the leaf that you removed, and record this in Table 2.1.

(iii) Multiply the leaf area obtained for the leaf in **(e)(i)** by the total number of leaves and enter the result in Table 2.1.

This gives the approximate total leaf area of shoot **C**.

Table 2.1

area of leaf in **(e)(i)**	
total number of leaves	
approximate total leaf area of shoot **C**	

[2]

[Total : 21]

SUPERVISOR'S REPORT

* *The Supervisor or Teacher responsible for the subject is asked to answer the following questions.*

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.

Declaration (to be signed by the Principal, and completed on the top script from the Centre)

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

Signed .....

Name (in block capitals) .....

***Information that applies to all candidates need be given only once.**

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**.