UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

7419469386

BIOLOGY **0610/06**

Paper 6 Alternative to Practical **October/November 2007**

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.
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.
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 Examiner's Use	
1	
2	
3	
Total	

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

For Examiner's Use

1 A protein is used to hold other chemicals onto the clear plastic backing of photographic film, as shown in Fig. 1.1.

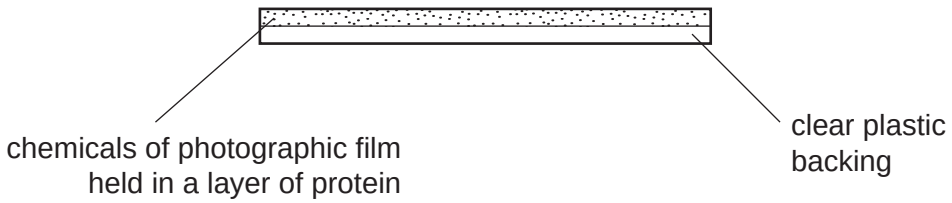

Fig.1.1

Trypsin is an enzyme which will digest the protein so that the coating on the photographic film is removed and the film becomes clear.

Table 1.1 shows the results obtained by two students who investigated the effect of pH on the activity of this enzyme. They made up the solutions, set up the experiment and timed how long the enzyme took to digest the protein and clear the film.

Table 1.1

pH	time for the protein to be digested / mins	
	student 1	student 2
2	12.0	14.0
4	8.0	9.0
6	2.0	3.0
8	0.5	1.0
10	8.0	9.0

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(a) (i) Plot the results obtained by **student 2** in the form of a suitable graph.

[5]

(ii) Describe and explain the effect of pH on the activity of the enzyme.

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..... [5]

[Turn over

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(b) (i) Suggest reasons for the difference in the results for the two students.

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(ii) If you were to carry out this investigation, describe what steps you would take to ensure that your results were as reliable and valid as possible.

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..... [5]

[Total:18]

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2 Fig.2.1 shows the lower surface of a dicotyledonous leaf.

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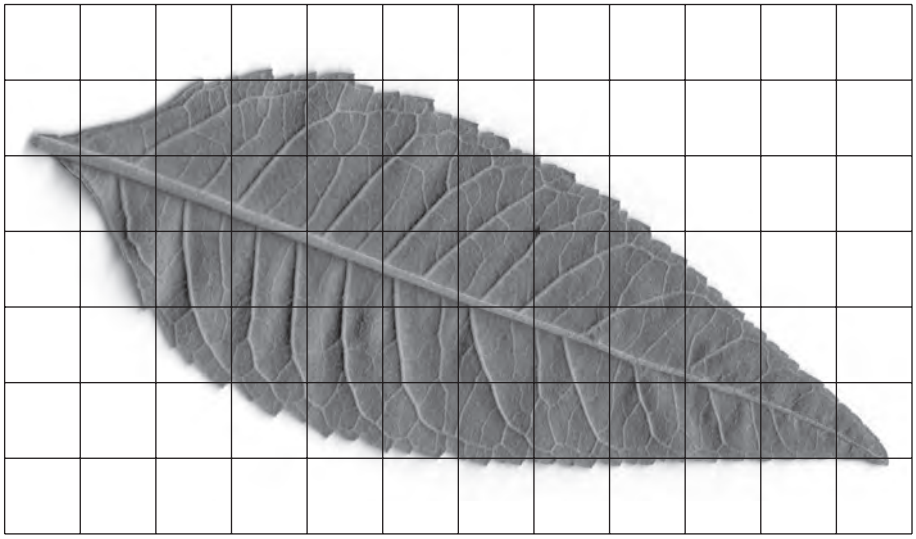

Magnification ×1

Fig. 2.1

(a) Make a labelled drawing of the leaf in Fig. 2.1. Your drawing should be the same size as that shown in Fig. 2.1.

[4]

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(b) (i) Calculate the surface area of this leaf in Fig.2.1 to the nearest cm^2.

.....cm^2 [1]

(ii) Describe how you obtained an answer that was as accurate as possible.

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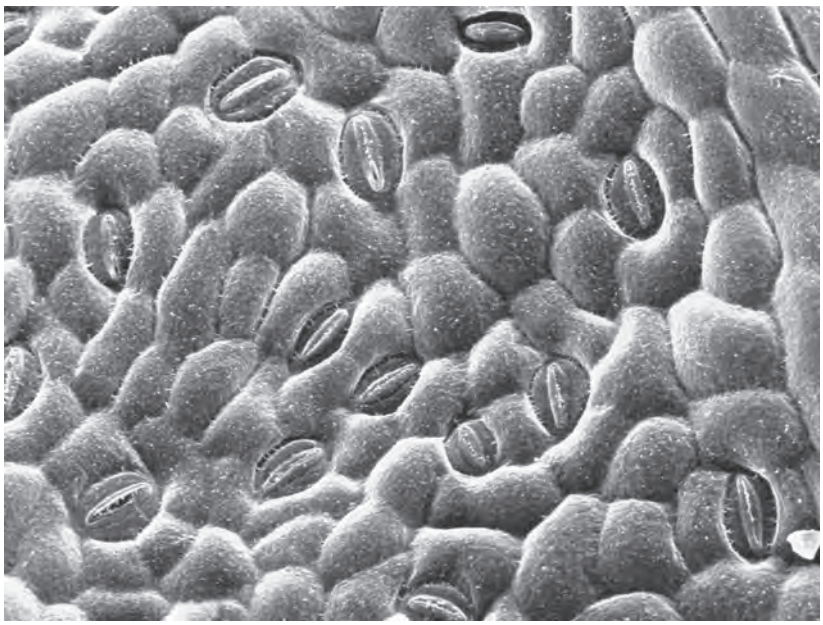
..... [2]

(c) Fig. 2.2 shows the detail of part of the lower surface of a similar leaf.



Magnification ×145

Fig. 2.2

(i) On Fig. 2.2, label **two** different types of cell. Use ruled label lines. [2]

(ii) On Fig. 2.2, put a circle around **two** of the cells where chloroplasts are normally present. [1]

[Turn over

(d) Suggest how you could determine the number of stomata present on one surface of a whole leaf.

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..... [4]

[Total: 14]

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3 Some seeds were obtained by breeding a pair of tobacco plants.
Seeds from a single packet of these tobacco seeds were germinated in two dishes labelled **A** and **B**. Fig. 3.1 shows the germinating tobacco seeds.

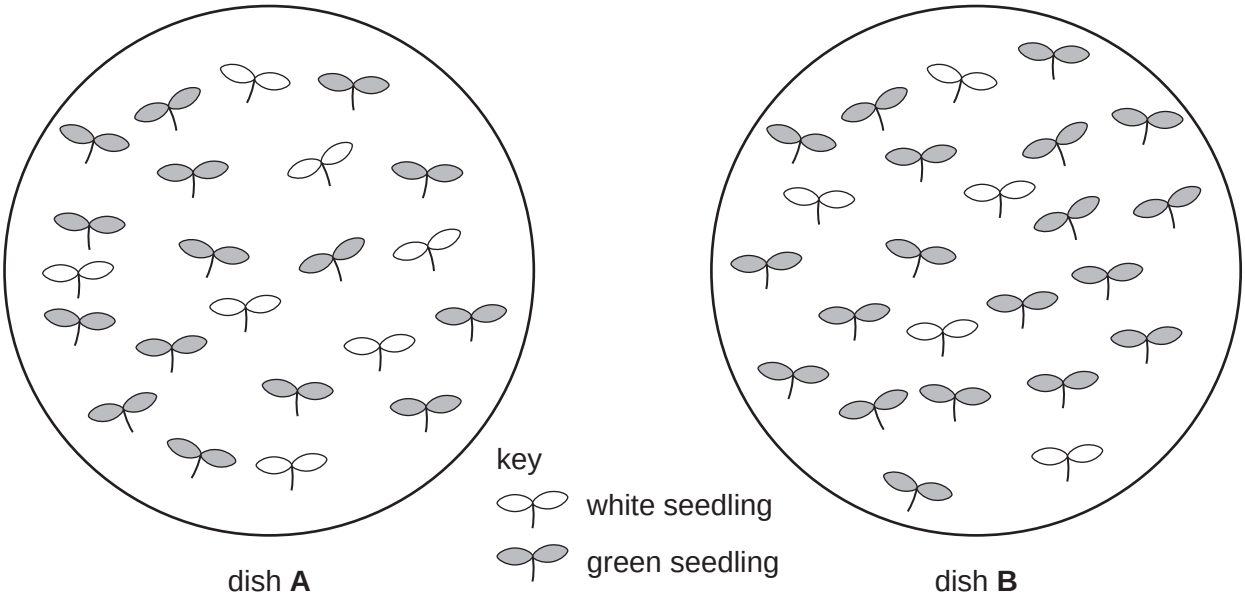

Fig. 3.1

(a) Count the number of green seedlings and the number of white seedlings on the two dishes **A** and **B** and complete Table 3.1.

Table 3.1

dish	number of seedlings	
	green	**white**
A		
B		
total		

[3]

(b) Using the total numbers in Table 3.1, suggest and explain what these results indicate about the inheritance of the green pigment.

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[Turn over

(c) Suggest and explain which of these seedlings would be able to grow and produce flowers.

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[Total: 8]

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