Centre Number	Candidate Number	Name

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

BIOLOGY **5090/06**

Paper 6 Alternative to Practical

October/November 2006

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 soft pencil for any diagrams, graphs, music or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.

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 **8** printed pages.

1 Fig.1.1 shows a section of a flower.

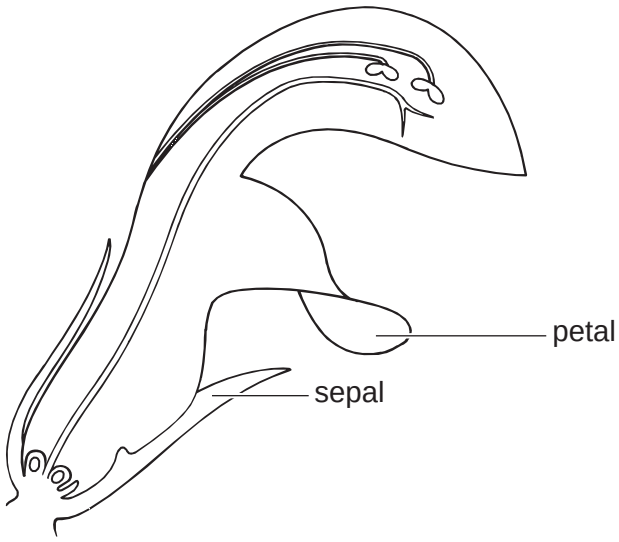


Fig. 1.1 (x 3)

Fig.1.2 shows a different type of flower.

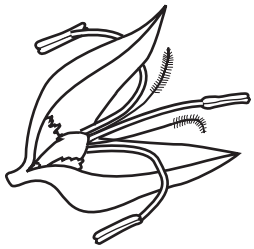


Fig. 1.2 (x 3)

(a) Select two structures that produce different reproductive cells and can be seen in Fig. 1.1.

(i) Label these structures on **Fig. 1.1** with the letters **A** and **B**. [1]

(ii) Label clearly where these structures are found in **Fig. 1.2**, using the letters **A** and **B**. [1]

(iii) Complete Table 1.1 so that each structure is related to its function.

Table 1.1

	name	function
A		
B		

[4]

(iv) Complete Table 1.2. to show **three** ways in which the two flowers can be seen to be different in structure.

Table 1.2

	flower in Fig. 1.1	flower in Fig. 1.2
1		
2		
3		

[3]

(b) (i) Suggest how the flower in Fig. 1.1 is pollinated.

.....[1]

(ii) State **two** reasons for your answer in **(b)(i)** that are features that can be seen in Fig. 1.1 .

.....

.....[2]

(iii) Suggest **two** more features that cannot be seen in Fig. 1.1 that are also typical of this method of pollination.

.....

.....

.....[2]

(c) Suggest **one** way by which a flower might be able to avoid self pollination.

.....

.....[1]

[Total : 15]

[Turn over

2 Fig. 2.1 is a photomicrograph of a section of mammalian skin.

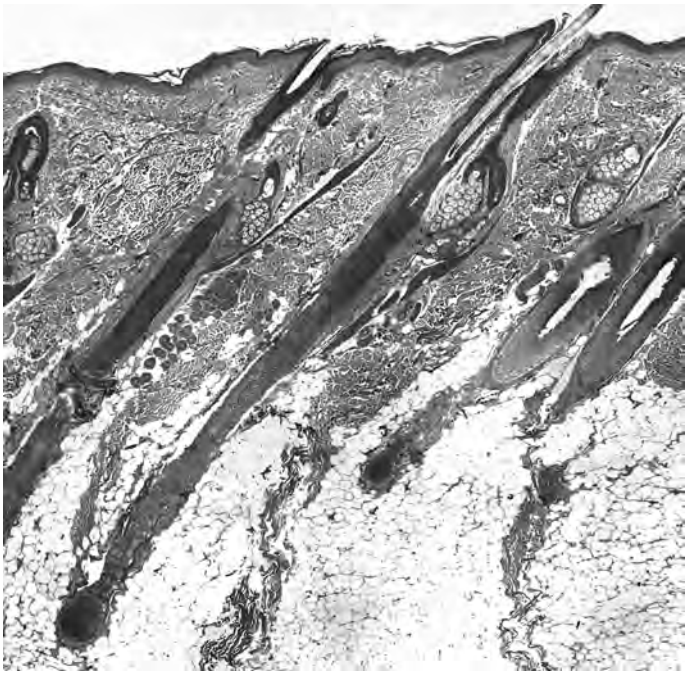


Fig. 2.1 (x 50)

Fig. 2.2 is a drawing that shows some of the structures that can be seen in Fig.2.1

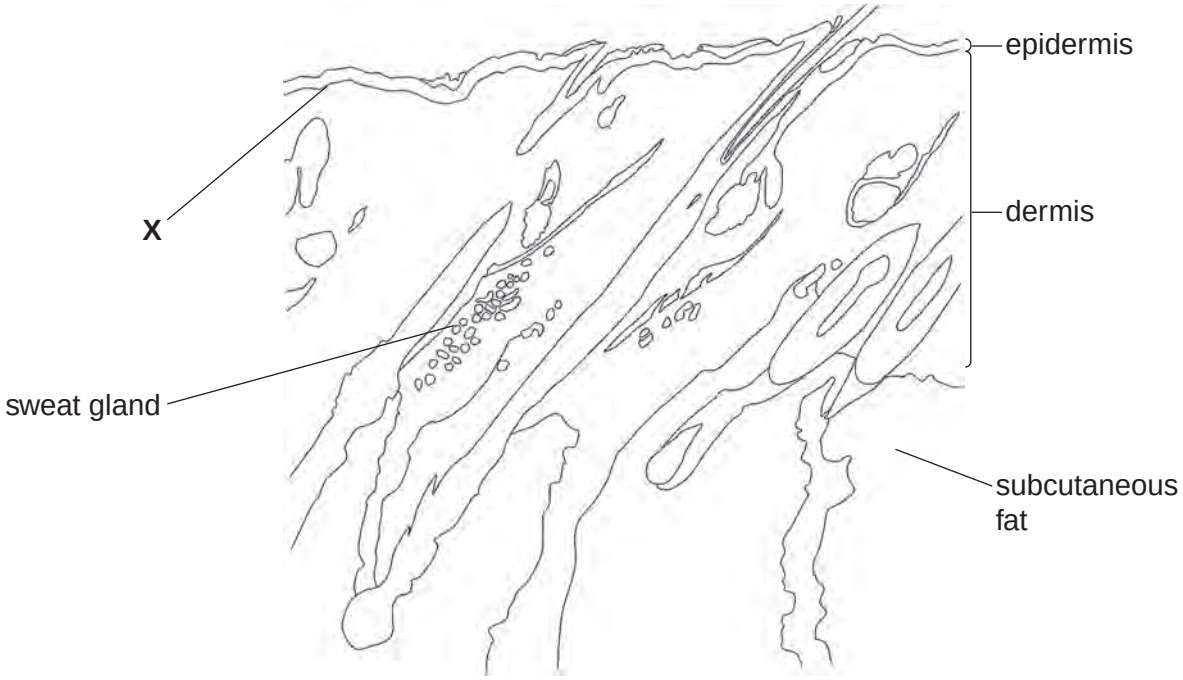


Fig. 2.2

(a) **(i)** Suggest why only one complete hair follicle is visible in Fig. 2.1.

..... [1]

(ii) State **one** function of the secretion from the gland that opens into the hair follicle.

..... [1]

(iii) Indicate, on Fig. 2.2, by means of a line labelled '**H**', where another hair almost became part of the section. [1]

(iv) Indicate, on Fig. 2.2, by means of a line labelled '**M**', a muscle that contracts to make a hair become erect. [1]

(b) (i) Suggest why the sweat gland appears as a group of small circular structures.

.....

..... [1]

(ii) The layer marked '**X**' on Fig. 2.2 is constantly dividing to produce new cells. State the type of division that is involved

.....[1]

(c) The fatty tissue in the skin helps to maintain constant body temperature by providing insulation.

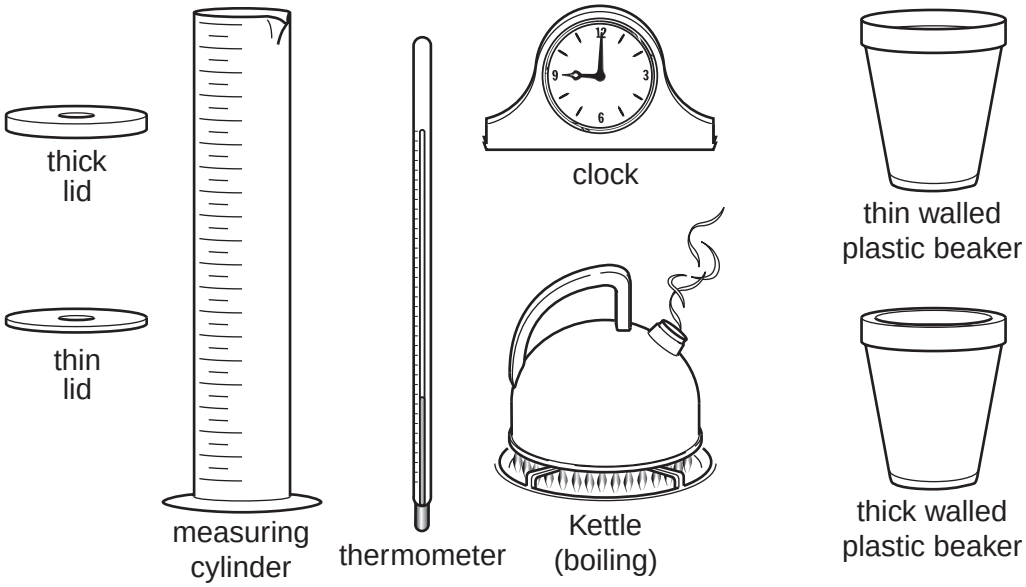


Fig. 2.3

(i) Plan an investigation into the effect of insulation on heat loss, using only the equipment shown in Fig. 2.3.

.....

.....

.....

.....

.....

.....

.....[3]

(ii) Suggest two ways in which this investigation could be improved, to make the results more reliable.

1 .....

.....

2 .....

.....[2]

[Total : 11]

3 Fig. 3.1 shows a potted plant that is sealed inside a transparent, airtight bag.

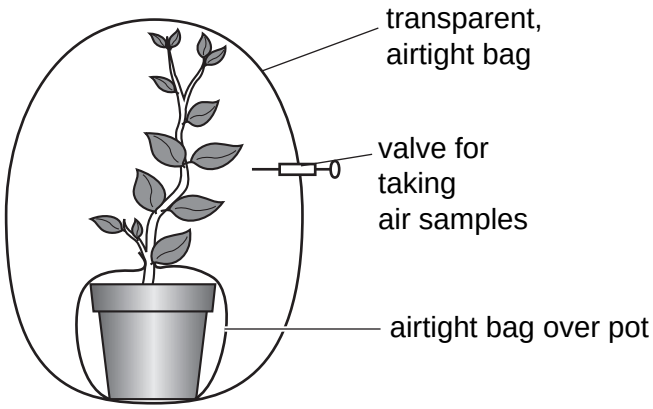


Fig. 3.1.

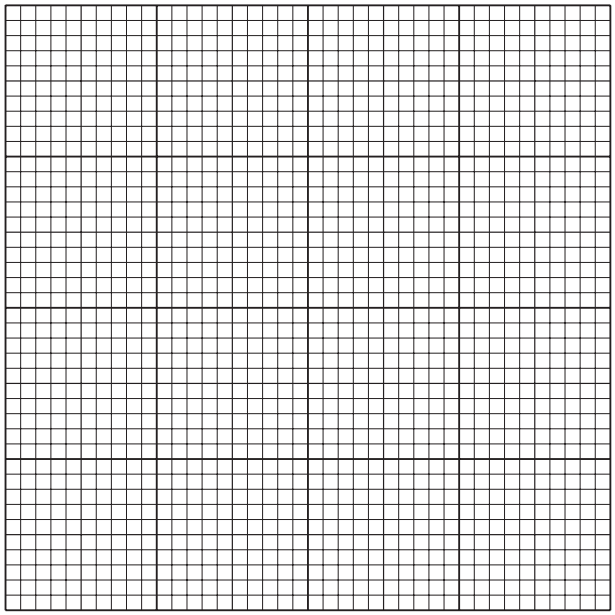
- The plant, enclosed in its airtight bag, was placed on the ground, in a forest, for 48 hours.
- A small sample of the enclosed air was taken every six hours.
- The carbon dioxide concentration of each air sample was measured and recorded in Table 3.1.

Table 3.1

time / h	carbon dioxide concentration / arbitrary units
0 (midnight)	10
6	13
12 (noon)	8
18	4
24 (midnight)	9
30	12
36 (noon)	8
42	4
48 (midnight)	10

(a) Construct a graph, on the grid provided, from the information in Table 3.1.

[4]



(b)

- Next day the plant in the transparent bag was taken out of the forest and was placed in full daylight.
- After three hours in full daylight the carbon dioxide concentration was measured and found to be 0 arbitrary units.

(i) Explain why this reading was 0.

.....

.....

.....[2]

(ii) Explain why the carbon dioxide concentration rose at certain times during this investigation.

.....

.....

.....[2]

(c) In a similar experiment a leaf was tested for the presence of starch and the presence of reducing sugar. Describe how you would carry out these tests.

starch :

.....

.....

..... [3]

reducing sugar:

.....

.....

..... [3]

[Total : 14]