



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
General Certificate of Education Ordinary Level

CANDIDATE  
NAME

CENTRE  
NUMBER

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CANDIDATE  
NUMBER

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**BIOLOGY**

**5090/61**

Paper 6 Alternative to Practical

**May/June 2011**

**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 in the spaces provided on the Question Paper.  
You may use a soft pencil for any diagrams, graphs or rough working.  
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	
<b>Total</b>	

This document consists of **8** printed pages.







2 Some students wanted to know how much vitamin C six different fruit juices contained. They knew that a blue dye, DCPIP (dichlorophenolindolphenol) goes colourless when sufficient vitamin C is added. They added one particular juice to a known volume of blue dye and, by recording how much juice was needed to decolourise this dye, were then able to work out how much vitamin C the juice contained. They repeated this procedure a further two times with that fruit juice.

(a) Explain why this procedure was repeated three times.

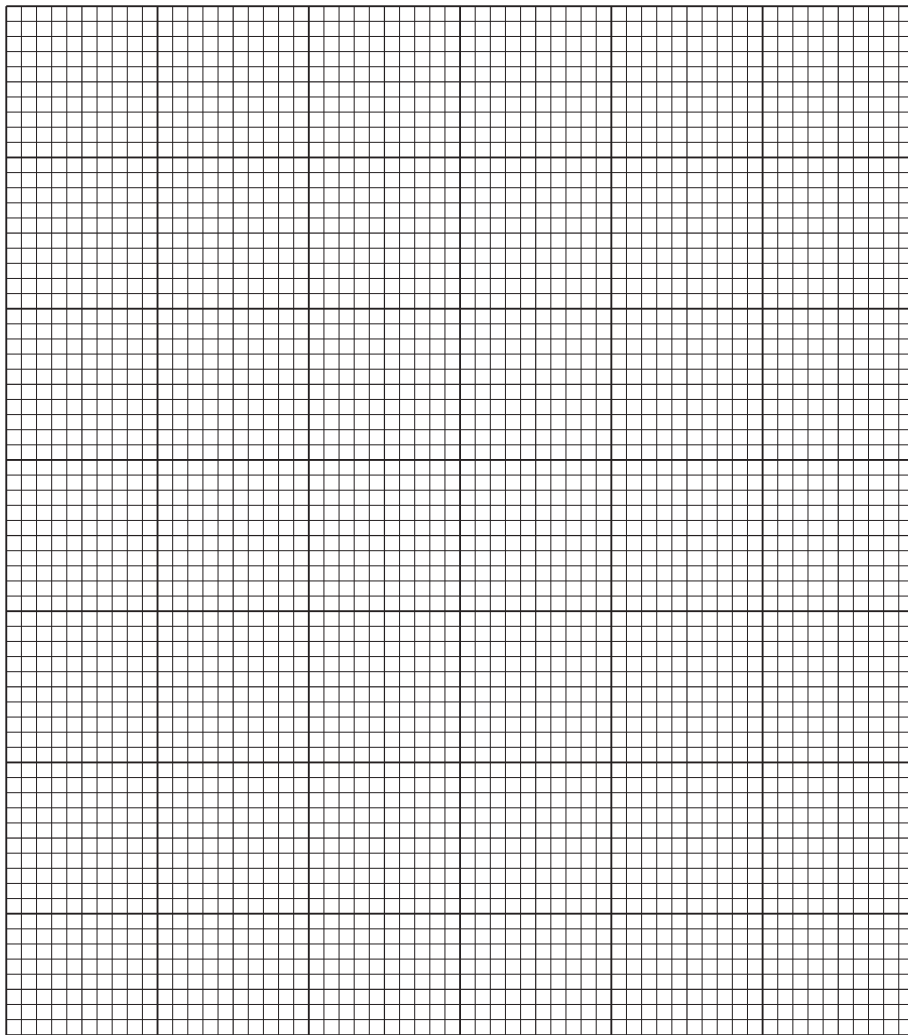
.....  
 ..... [1]

They then tested the other five fruit juices in the same way, keeping the volume of blue dye used in the tests constant. Their results are shown in Table 2.1.

**Table 2.1**

	kakadu plum	camu camu	gojiberry	blackcurrant	kiwifruit	orange
vitamin C / mg per 100g	3100	2800	2500	200	90	50

(b) (i) Draw a bar chart of the vitamin C content of the fruits in Table 2.1.





- 3 Fig. 3.1 is a photograph of a locust, an insect.



**Fig. 3.1**

- (a) (i) Make a large drawing of one back leg of this insect.

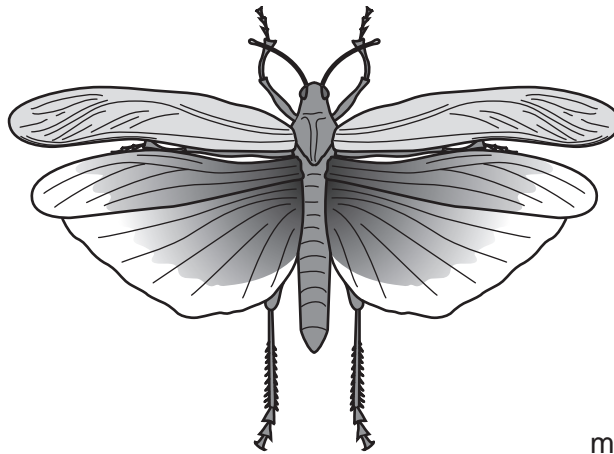
[4]

- (ii) Calculate the ratio of the length of one front leg in Fig. 3.1 to the length of this back leg in Fig. 3.1.

*length of front leg* .....

*length of back leg* .....

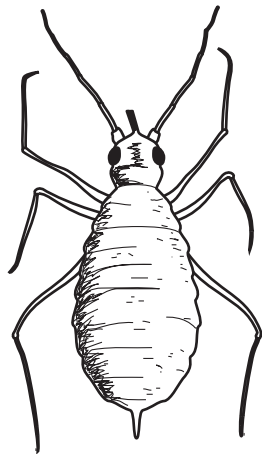
Fig. 3.2 shows the locust in flight.



magnification x 1

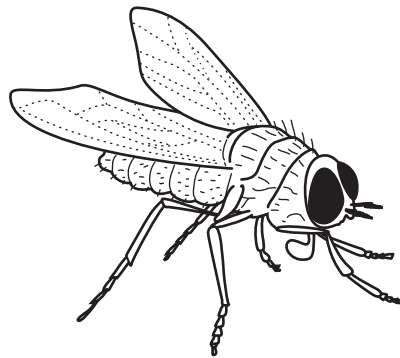
**Fig. 3.2**

Fig. 3.3 shows two other insects, an aphid and a fly.



aphid

actual length  
|  
0.5 cm



fly

actual length  
|  
1.5 cm

**Fig. 3.3**

(b) With reference to Fig. 3.2 and Fig. 3.3, list three similar features of these insects.

1. ....
2. ....
3. .... [3]

(c) (i) Describe **two** differences between the locust and the fly.

- .....
- ..... [2]

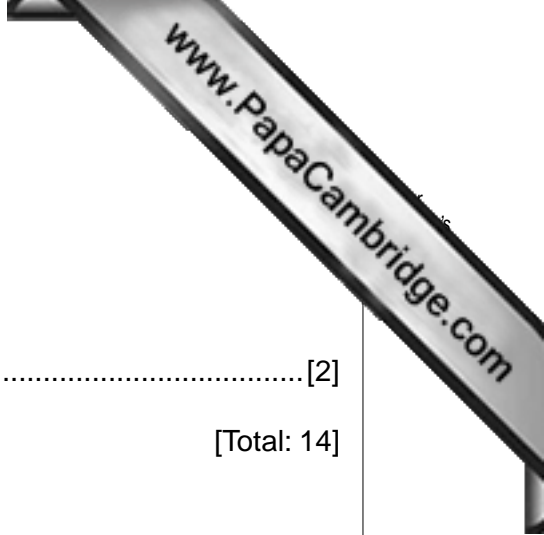
(ii) Describe **one** difference between the locust and the aphid.

- ..... [1]

(iii) Calculate the magnification of the drawing of the fly.

magnification .....[2]

[Total: 14]



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*Copyright Acknowledgements:*

Fig. 3.1 © Chris Mattison/Alamy

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