UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER | | | | | |

CANDIDATE NUMBER | | | | |

0864938727

BIOLOGY **0610/63**

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

1 Two students carried out an investigation into reaction times.

Student 1 dropped a metre rule.

Student 2 tried to catch the metre rule as soon as possible after it had been dropped.

Fig. 1.1 shows a metre rule about to be dropped by Student 1, whilst Student 2 is ready to catch the rule.

Fig. 1.2 shows the metre rule after it has been caught.

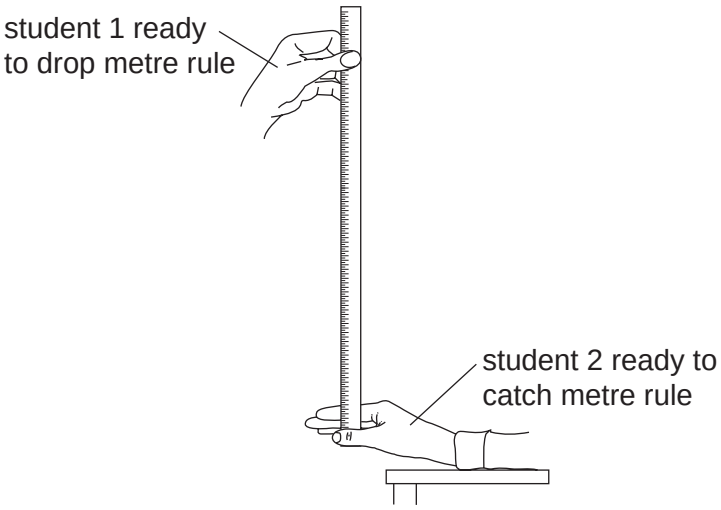

Fig. 1.1

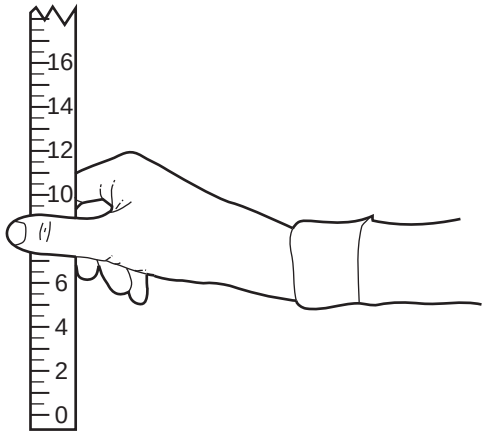

Fig. 1.2

Once the ruler has been caught, the distance from their thumb to the bottom of the ruler was measured in centimetres.

Three results for each hand were taken and recorded in Table 1.1.

The last result for the right hand is shown in Fig. 1.2.

(a) (i) Read the distance on the ruler and record this value in Table 1.1. [1]

Table 1.1

reading	distance ruler dropped / cm	
	left hand	right hand
1	22	16
2	16	12
3	13	.....
mean	17	.....

(ii) Complete Table 1.1 by calculating the mean distance for the right hand. [1]

(b) (i) Suggest what this experiment was designed to investigate.

.....

.....

..... [1]

(ii) State three variables that should be kept the same throughout this investigation.

1 .....

2 .....

3 ..... [3]

(c) Approximate reaction times can be calculated from the distance the ruler has dropped.

Table 1.2 shows these approximate reaction times.

Table 1.2

distance / cm	reaction time / s
5	0.10
10	0.14
15	0.17
20	0.20
25	0.23

(i) Estimate the reaction times for the *left hand* and *right hand* using the mean distances in Table 1.1.

left hand .....

right hand ..... [2]

(ii) Explain what conclusion you can make about the reaction time of this student.

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..... [2]

(d) Some drugs act as stimulants on the body and others act as depressants.

Suggest how this experiment could be adapted to investigate the effect of a stimulant on reaction times.

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..... [3]

[Total: 13]

2 Fig. 2.1 shows a fruit of a raspberry, *Rubus idaeus*.

This fruit is composed of many small fruits (fruitlets) joined together.

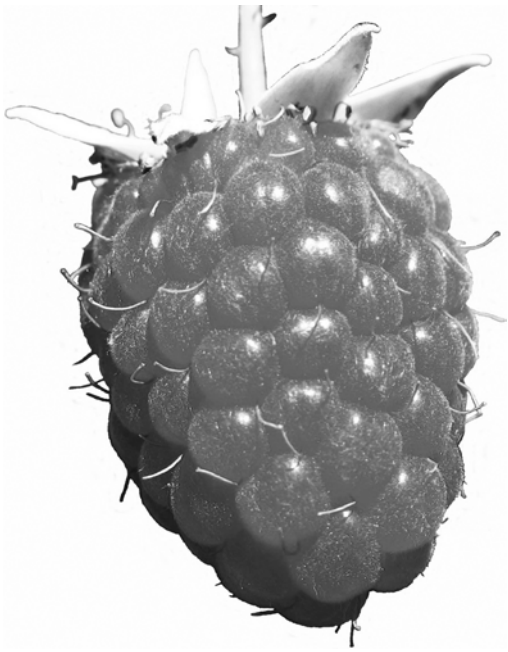


Fig. 2.1

(a) Make a large, labelled drawing of this fruit.

[5]

48 of these fruits were collected and, for each fruit, the number of fruitlets was counte… results were recorded as shown below.

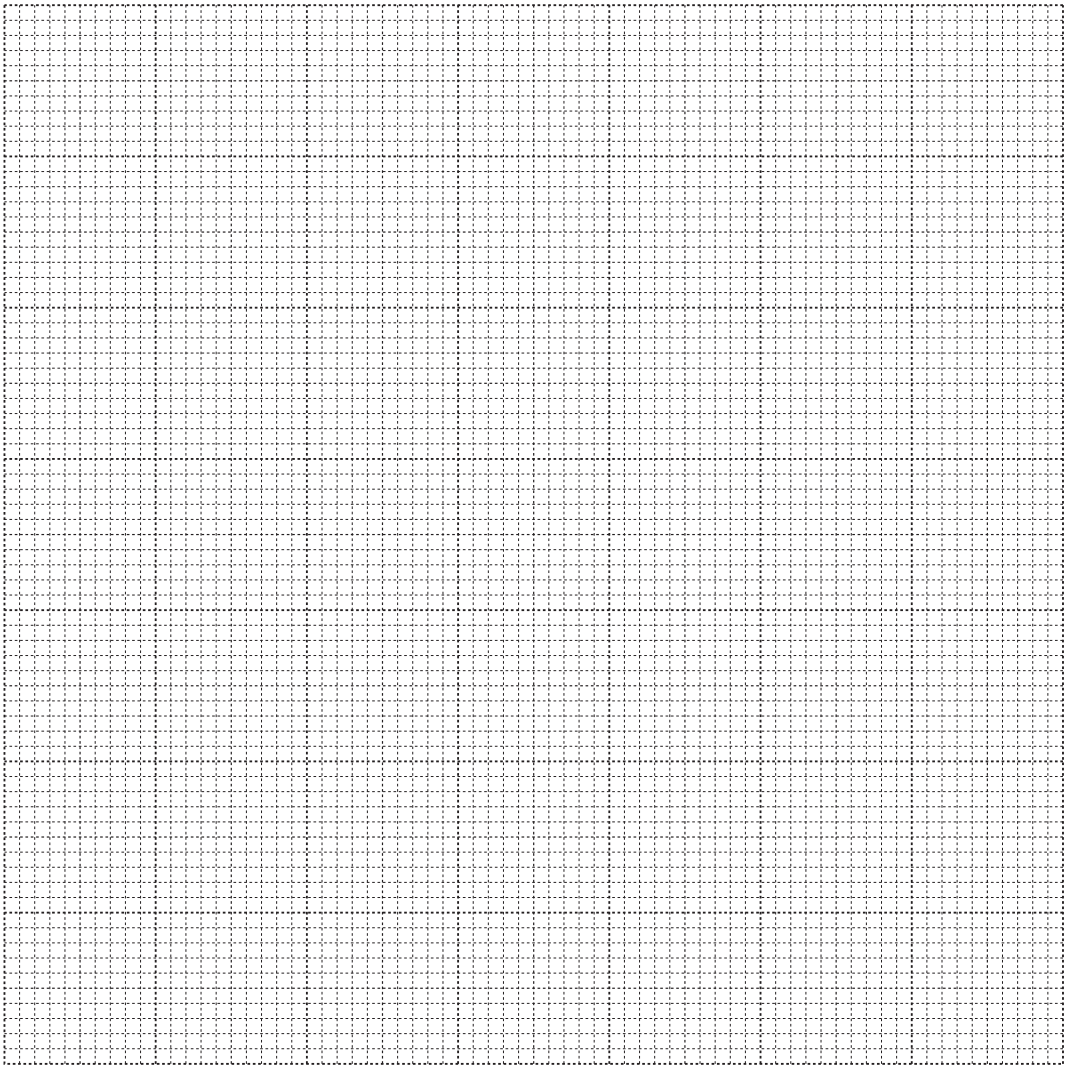
65	75	86	82	84	86	98	97
77	63	73	53	97	76	59	77
72	69	104	59	75	52	66	68
52	93	84	85	74	82	59	65
80	76	75	69	74	63	85	61
82	76	69	71	91	68	77	92

(b) (i) Arrange the number of fruitlets in each fruit into a tally chart, as shown for 50 – 59 fruitlets.

tally of fruitlets in each fruit					
50 - 59	60 - 69	70 - 79	80 - 89	90 - 99	100 - 109
/// /					
6					

[3]

(ii) Construct a histogram to show the number of fruitlets per fruit.



[5]

(c) Describe the type of distribution shown by the raspberry fruitlets.

.....

..... [2]

(d) Raspberry fruits are sweet, juicy and brightly coloured.

Suggest how the seeds inside these fruits may be dispersed.

.....

.....

.....

..... [2]

[Total: 17]

3 Plants take up water through their roots.

Water passes to all parts of the plant through the xylem.

The leaves carry out photosynthesis to form sugars.

Phloem transports these sugars to different parts of the plant where they are stored in an insoluble form.

(a) Fig. 3.1 shows a young, unthickened dicotyledonous plant.

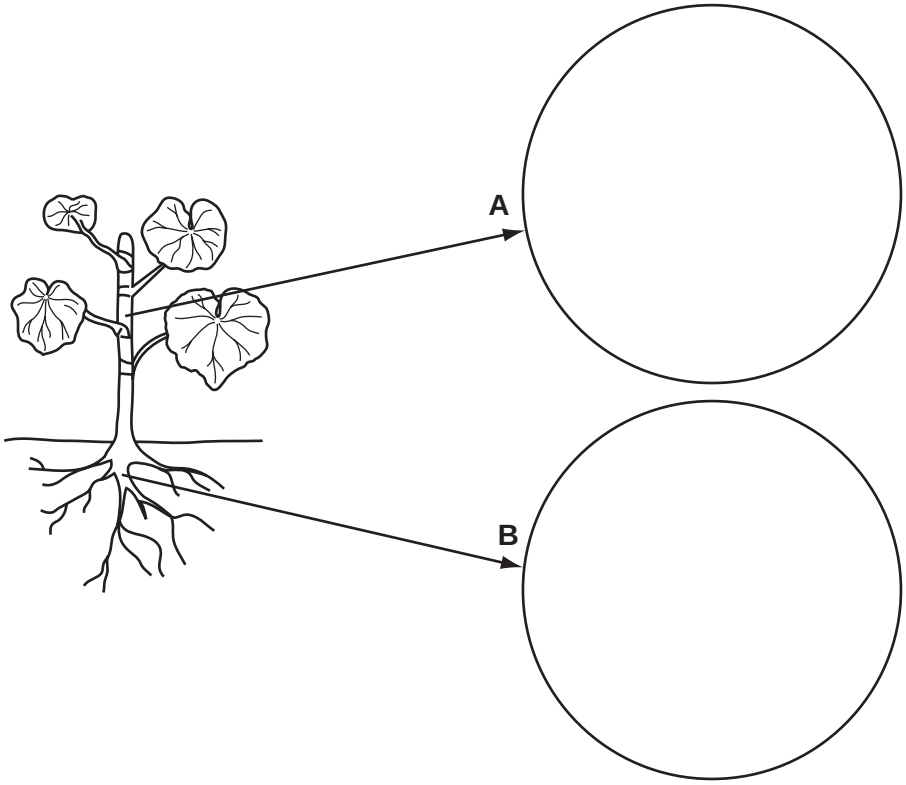


Fig. 3.1

(i) In circle **A**, draw the distribution of phloem and xylem as found in a section through a stem. Label the phloem and xylem. [3]

(ii) In circle **B**, draw the distribution of phloem and xylem as found in a section through a root. Label the phloem and xylem. [3]

(b) (i) Name the sugar that is transported in the phloem.

..... [1]

(ii) Name the insoluble carbohydrate that is stored in plants.

..... [1]

(c) Describe a food test you could carry out to show where the insoluble carbo
named in **(b)(ii)** is found in a root.

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..... [2]

[Total:10]

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