



## UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS International General Certificate of Secondary Education

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CANDIDATE NAME

CENTRE NUMBER

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CANDIDATE NUMBER

Biology

Paper 5 Practical Test

October/November 2011

1 hour 15 mins

0610/53

Candidates answer on the Question Paper

Additional Materials:

As listed in the Confidential Instructions

## **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 both 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		
Total		

This document consists of 8 printed pages.



- 1 You are provided with part of a fruit labelled Y1.
  - (a) Make a large, labelled diagram of the fruit to show
    - the arrangement of the seeds,
    - the thickness of the fruit wall.

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[5]

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	•	Remov	ve one seed.			
(b)	Des	scribe th	ne <b>external</b> appearance o	f this seed.		
					[2]	
(c)	(i)		be how you could carry or f the food material stored		al structure of the seed to y of the following.	
		fat				
		starch				
					[4]	
	•		ve three more seeds. ve the testa (seed coat) fro	om each seed		
		Remo	re the testa (seed coat) he	om eden seed.		
	(ii)		ne internal structure of the d your observations and c			
	Table 1.1					
	t	test	initial observation	final observation	conclusion	
		fat				
	st	tarch				

[4]

For Examiner's Use These seeds can germinate, grow, flower and produce seeds within one year.

Fig. 1.1 shows a seedling which has grown from a seed taken from fruit **Y1**.



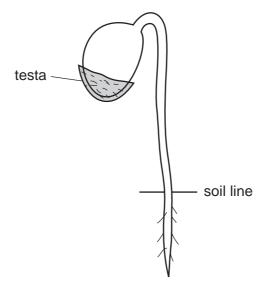


Fig. 1.1

(d) (i)	Complete the labelling of the seedling on Fig. 1.1.  The testa of this seedling has been labelled for you.  [2]	2]
(ii)	Describe how you would germinate these seeds. Include the environmental conditions required.	
	[	3]
	ITotal: 2	<b>∩</b> 1

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2 You are provided with two pieces of potato. These are long thin strips which will be called 'chips'.

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The chips were cut to measure 60 mm in length.

One chip is in a concentrated salt (sodium chloride) solution, labelled **salt solution**.

The other chip is in distilled water, labelled **distilled water**.

Remove the chip from the salt solution.

•	Car	efully blot it dry using a paper towel.  the the chip on the black card.	
(a)	(i)	Measure the length of this chip and record it below. Record any change in length from the original 60 mm.	
		length	
		change [2	2]
	(ii)	Describe the appearance and texture of this chip.	
			•••
		[2	2]
•	Car	nove the other chip from the distilled water. efully blot it dry using a paper towel. se the chip on the black card.	
(b)	(i)	Measure the length of this chip and record it below. Record any change in length from the original 60 mm.	
		length	
		change[2	2]
	(ii)	Describe the appearance and texture of this chip.	
		[2	2]

)	Explain the changes that you have observed in these two chips.
	[4]

A similar investigation was carried out by a group of students.

They measured the masses of five chips before putting each chip into a different concentration of sucrose solution.

The chips were left in the solutions for two hours.

After two hours each chip was removed from the sucrose solution and its mass measured.

The results are shown in Table 2.1.

Table 2.1

concentration of sucrose solution /g dm <sup>-3</sup>	mass at start / g	mass after two hours / g	difference in mass / g	percentage change
0.0	1.36	1.49	+0.13	9.56
35.0	1.41	1.48	+0.07	4.96
70.0	1.46	1.47	+0.01	0.68
175.0	1.47	1.38	-0.09	-6.12
270.0	1.45	1.31	-0.14	

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(d) (i)	Complete Table 2.1 by calculating the percentage change in mass for the most concentrated solution. Show your working. Write your answer in Table 2.1.
(ii)	[1] Suggest why it is necessary to calculate the percentage change in mass when comparing the chips.
	[1]
(iii)	Plot a graph to show the percentage change in mass against the concentration of sucrose solution. Use the grid and axes provided.
% increase in mass	
	concentration of sucrose solution / g dm <sup>-3</sup>
% decrease in mass	
	[4]

e)	(i)	Use your graph to find the concentration of sucrose solution in which the mass of the chip would stay the same.	For Examiner's Use
		gdm <sup>-3</sup> [1]	
	(ii)	Explain why the mass would stay the same.	
		[1]	
		[Total: 20]	

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