Surname	Centre Number	Candidate Number
Other Names		2

GCE A LEVEL

1400U50-1A

S19-1400U50-1A

BIOLOGY – A2 unit 5

Practical Examination

Experimental Task

TEST 1

TUESDAY, 2 APRIL 2019

2 hours

For Teacher's use only Award a mark of 0 or 1 for each of the following	
Drying of pieces of potato	
Weighing of pieces of potato	

For Examiner's use only	
Mark Awarded	
Total	

1400U501A
01

ADDITIONAL MATERIALS

In addition to this examination paper, you will require a calculator and a ruler.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen. Pencil may be used to draw tables and graphs.
Write your name, centre number and candidate number in the spaces at the top of this page.
Write your answers in the spaces provided in this booklet.

INFORMATION FOR CANDIDATES

The total number of marks available for this task is 20.
Your teacher will directly assess your practical skills.
The number of marks is given in brackets at the end of each question or part question.
You are reminded of the necessity for orderly presentation in your answers.

1. Global warming has been identified as a major factor in climate change. Due to increasing temperatures, sea levels are rising and there has been an increase in flooding of land at sea-level.

Flooding by seawater increases the salt concentration of the soil. This affects the ability of some plants to absorb and retain water.

You are going to investigate how exposure to seawater affects plant tissues.

Follow these instructions carefully

You are provided with:

1. 2 × pieces of potato
2. 1 × scalpel
3. 1 × tile
4. 2 × Petri dishes (90 mm diameter)
5. 1 × beaker of seawater
6. 1 × 50 cm^3 measuring cylinder
7. 1 × dropping pipette
8. paper towels
9. 1 × stopclock
10. 1 × forceps
11. access to a balance (± 0.01 g)

YOUR TEACHER WILL BE OBSERVING YOUR EXPERIMENTAL TECHNIQUE. [2]

Method

1. Use a 50 cm^3 measuring cylinder to add 35 cm^3 of seawater to each of the Petri dishes.

2. Cut each piece of potato to the same, longest length possible from those provided.

3. Carefully dry each piece of potato and use the balance to find the mass of each piece.

4. Record these masses as the starting masses for each piece of potato.

5. Add the pieces of potato to separate Petri dishes and start the stopclock.

6. After 5 minutes remove the pieces of potato from each Petri dish. Dry them carefully and use the balance to find their masses. Return the pieces of potato to the Petri dishes.

7. Repeat Step **6** at 10, 15, 20, 25 and 30 minutes.

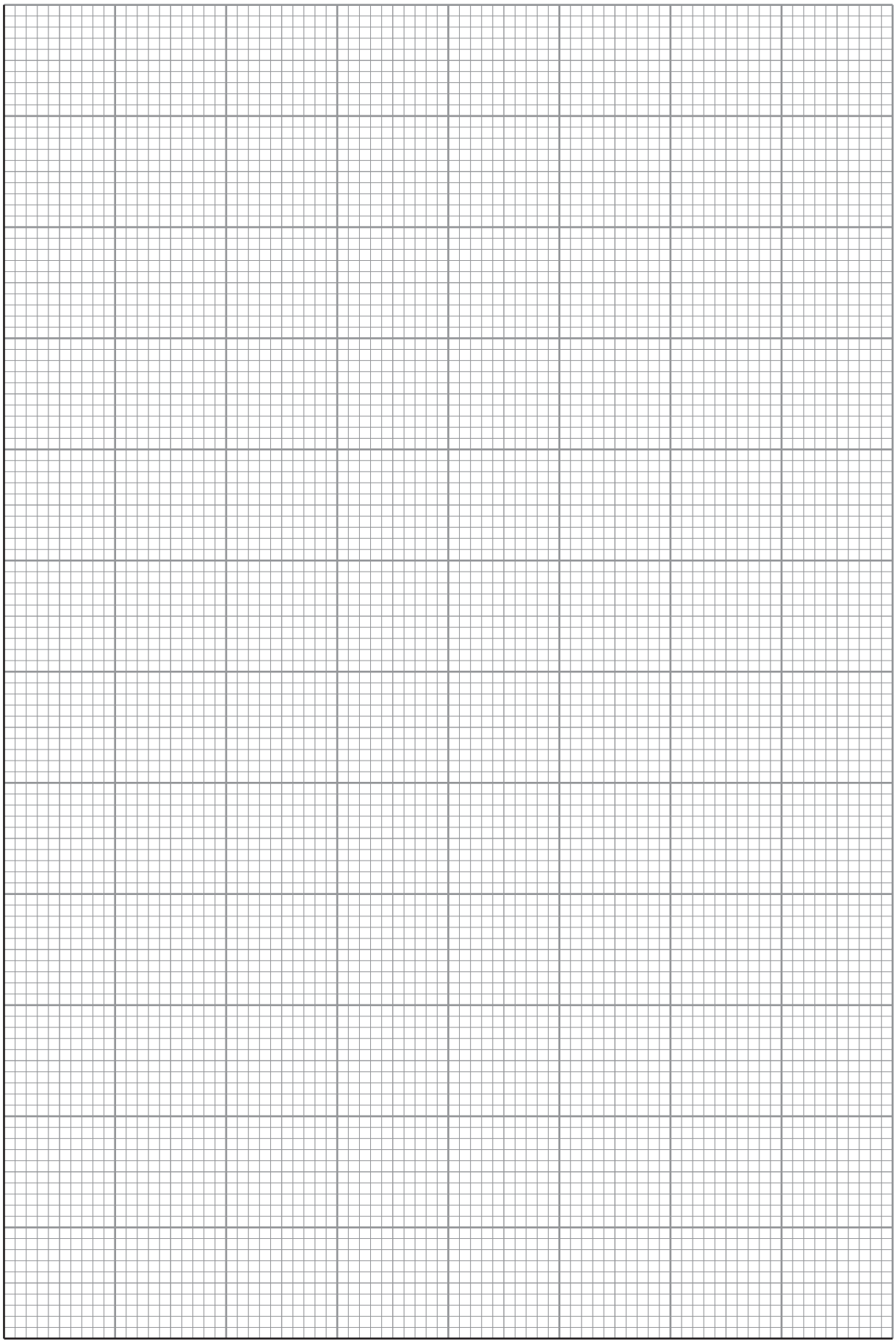
Examiner only

Record your rough results in the space below. Record the masses of each piece of potato at the start and after 5, 10, 15, 20, 25 and 30 minutes in seawater. Calculate the **percentage change** after each time period for each piece. The percentage changes should be recorded to one decimal place.

(a) Draw a suitable table to show the percentage change in mass for each piece of potato and the mean percentage change in mass after each time period. [4]

(b) Draw a graph to show how the mean percentage change in mass of the pieces of potato changed over time. Include range bars on your graph. [7]

Examiner only



Examiner only

(c) (i) Explain why you calculated percentage change in mass rather than comparing actual changes in mass. [1]

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(ii) What information do the range bars provide? [1]

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(iii) Predict the shape of the graph if the pieces of potato had been left for a longer time in the seawater. Explain your answer. [2]

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(iv) Your teacher observed you drying the pieces of potato. Explain how a lack of consistency in carrying out this task could have resulted in inaccuracies in your results. [2]

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(v) It was suggested that a suitable control for this experiment would be to use pieces of boiled and cooled potato. Explain why this would not be a suitable control experiment. [1]

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END OF PAPER

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