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Surname	Other names				
Pearson Edexcel International Advanced Level	Centre Number <table border="1" style="display: inline-table; border-collapse: collapse; text-align: center; width: 60px; height: 20px;"> <tr><td style="width: 15px; height: 15px;"></td><td style="width: 15px; height: 15px;"></td><td style="width: 15px; height: 15px;"></td><td style="width: 15px; height: 15px;"></td></tr> </table>				
	Candidate Number <table border="1" style="display: inline-table; border-collapse: collapse; text-align: center; width: 60px; height: 20px;"> <tr><td style="width: 15px; height: 15px;"></td><td style="width: 15px; height: 15px;"></td><td style="width: 15px; height: 15px;"></td><td style="width: 15px; height: 15px;"></td></tr> </table>				
<h1 style="margin: 0;">Biology</h1> <h2 style="margin: 0;">Advanced</h2> <h3 style="margin: 0;">Unit 6: Practical Biology and Investigative Skills</h3>					
Friday 12 May 2017 – Afternoon Time: 1 hour 30 minutes	Paper Reference WBI06/01				
You must have: Calculator, HB pencil, ruler	Total Marks 				

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
– *there may be more space than you need.*

Information

- The total mark for this paper is 50.
- The marks for **each** question are shown in brackets
– *use this as a guide as to how much time to spend on each question.*
- You will be assessed on your ability to organise and present information, ideas, descriptions and arguments clearly and logically, including your use of grammar, punctuation and spelling.
- Candidates may use a calculator.

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ►

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2 The photograph below shows *Garra barrimiae*, a species of fish that feeds on aquatic plants.



Magnification $\times 1.5$

These fish live in rivers that only flow for a short time after rainfall. The fish become trapped in pools for several months in the dry season.

A student noticed that, at the end of the dry season, the fish in different pools were different sizes.

The student investigated the sizes of fish in two pools, **A** and **B**.

(a) Write a null hypothesis for this investigation.

(2)

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- (b) The student caught a sample of fish from each pool. The length of each fish was measured and recorded.

The results are shown below.

Pool A

51mm, 39mm, 45mm, 38mm, 35mm, 32mm, 39mm, 47mm,
40mm, 41mm, 31mm, 42mm, 43mm, 50mm, 44mm

Pool B

45mm, 54mm, 50mm, 48mm, 45mm, 44mm, 41mm, 43mm,
47mm, 37mm, 48mm, 42mm, 50mm, 42mm, 46mm

- (i) Calculate the mean length of the fish for pool **A** and for pool **B**.

In the space below, draw a table to show the raw data and your calculated mean values.

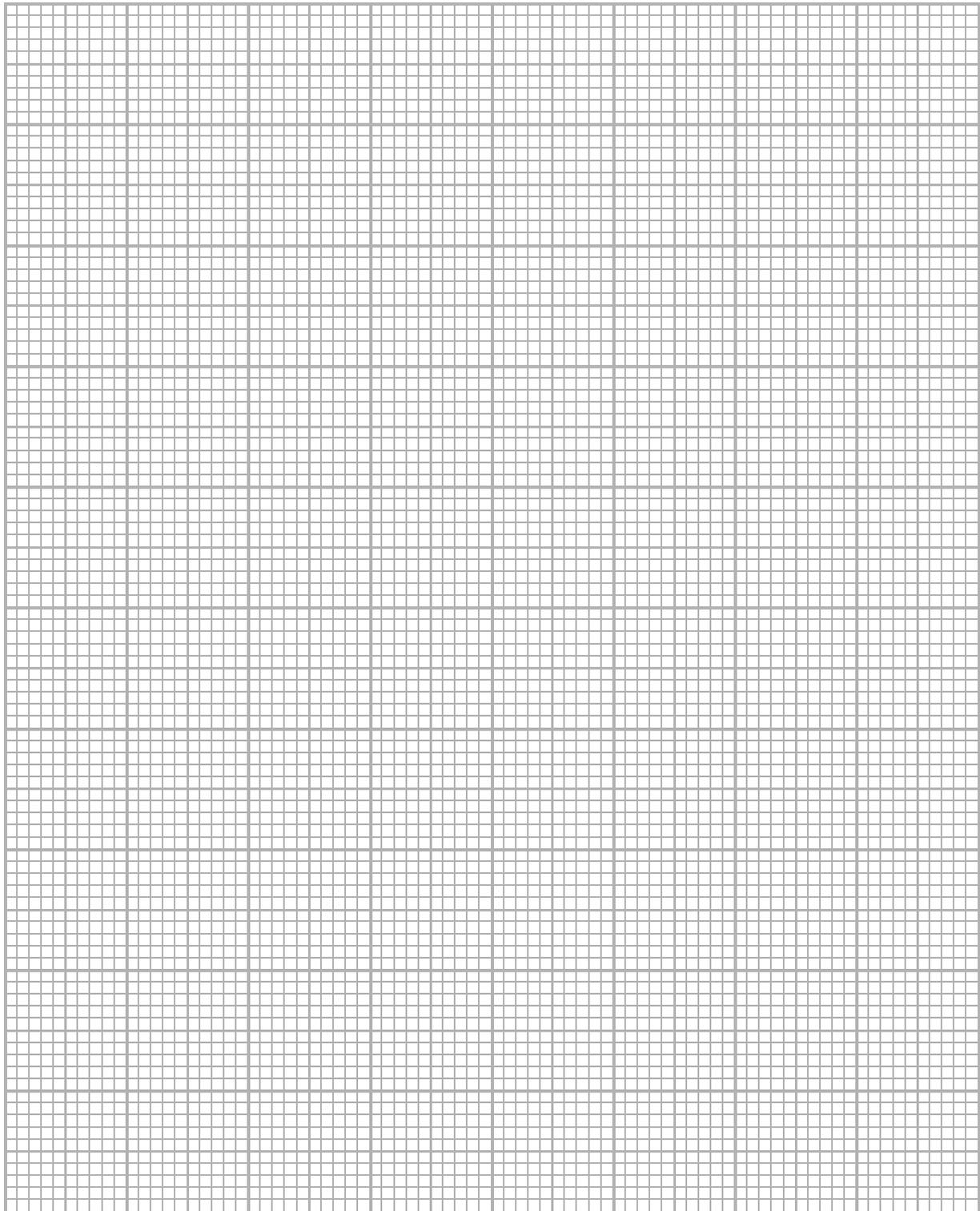
(3)



- (ii) On the graph paper below, draw a suitable graph to compare the mean length of the fish from pool **A** and from pool **B**.

Indicate on your graph the variability of the data.

(3)



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(d) Suggest how this investigation could be modified to identify factors affecting the size of the fish in the pools.

(4)

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(Total for Question 2 = 16 marks)



- 3 The photograph below shows oregano, a plant used to flavour food. Some of the chemicals produced by this plant may have antimicrobial properties.



Magnification $\times 1$

- (a) Suggest how a plant may benefit from producing a chemical with antimicrobial properties. (2)

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- (b) Plan an investigation to determine which part of the oregano plant has the highest concentration of chemicals with antimicrobial properties.

Your answer should give details under the following headings.

- (i) A description of appropriate preliminary work that you might carry out to ensure your proposed method would provide meaningful data. (3)

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- (ii) A detailed method, including an explanation of how important variables are to be controlled or monitored.

[2 marks are available in this section for the quality of written communication.]

(10)

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