Surname	Centre Number	Candidate Number
First name(s)		0

GCSE

S24-3430U70-1B

MONDAY, 8 JANUARY – FRIDAY, 9 FEBRUARY 2024

SCIENCE (Double Award) – Unit 7 (3430U70)

PRACTICAL ASSESSMENT

INVESTIGATING THE EFFECT OF SWEATING ON THE RATE OF COOLING

SECTION B

1 hour

For Examiner's use only		
	Maximum Mark	Mark Awarded
Section B	24	

3430U701B
01

ADDITIONAL MATERIALS

A calculator and your Section **A** exam paper.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen. Do not use gel pen or correction fluid.

You may use a pencil for graphs and diagrams only.

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** questions.

Write your answers in the spaces provided in this booklet. If you run out of space, use the additional page(s) at the back of the booklet, taking care to number the question(s) correctly.

INFORMATION FOR CANDIDATES

The total number of marks available for this section of the task is 24.

The number of marks is given in brackets at the end of each question or part-question.

This task is in 2 sections, **A** and **B**. You will have completed Section **A** in a previous lesson.

Examiner only

SECTION B

Answer **all** questions.

2. (a) (i) State the dependent variable in this experiment. [1]

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(ii) State the range of the dependent variable for the 'sweating' tube. [1]

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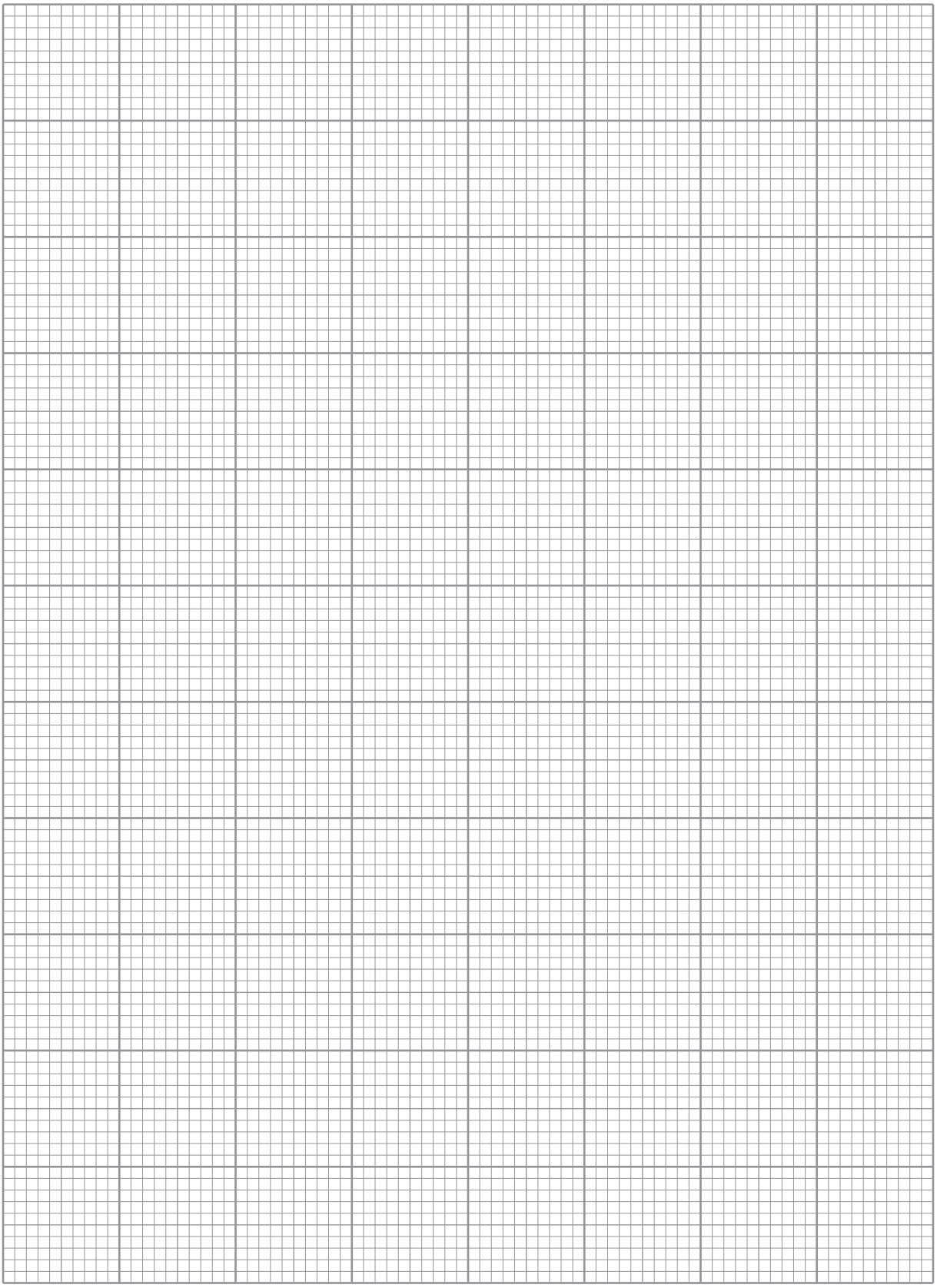
(iii) Both tubes were covered in five layers of newspaper.
Complete the table below by stating **two** other variables that were controlled.
Describe how each of these variables was controlled. [4]

Control variable	How was this variable controlled?

(b) (i) Use your results from Section **A** to draw a graph of the temperature of the **'sweating'** tube (vertical axis) against time (horizontal axis) on the grid opposite.
The scale on the time axis should continue to 6 minutes.
Include a plot for the starting temperature at 0 minutes. [5]

Examiner only



Turn over.

Examiner only

(ii) Suggest a value for the temperature of the 'sweating' tube at **6 minutes**.
Show on your graph how you arrived at this result. [2]

temperature = ... °C

(c) (i) Use your results from Section **A** to describe the difference in temperature change between the 'sweating' tube and the 'dry' tube. [1]

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(ii) This experiment demonstrates how sweating cools the human body.
Explain how sweating cools the human body. [2]

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(d) (i) Complete the table below by suggesting **one** improvement. [1]

Inaccuracy	Improvement
Measuring cylinder was only accurate to the nearest cm^3.	

(ii) One limitation of this model is using cold water on the outside of the 'sweating' tube to represent sweat.
Suggest why this is not a true representation. [1]

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Examiner only

(e) Libby and Angharad carried out a similar experiment to your method. Their results are shown below.

	Temperature change (°C)			
Tube	Trial 1	Trial 2	Trial 3	Mean
'sweating'	27	26	29	27
'dry'	21	14	15	17

(i) Calculate a more appropriate mean for the temperature change of the 'dry' tube. [2]

mean = ... °C

(ii) Explain why repeating results for the 'dry' tube allowed Libby and Angharad to have more confidence in their conclusion. [2]

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(iii) Libby says that the results for the 'sweating' tube are repeatable. Evaluate this statement. [2]

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24

END OF PAPER

Question number	Additional page, if required. Write the question number(s) in the left-hand margin.

Examiner only

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