

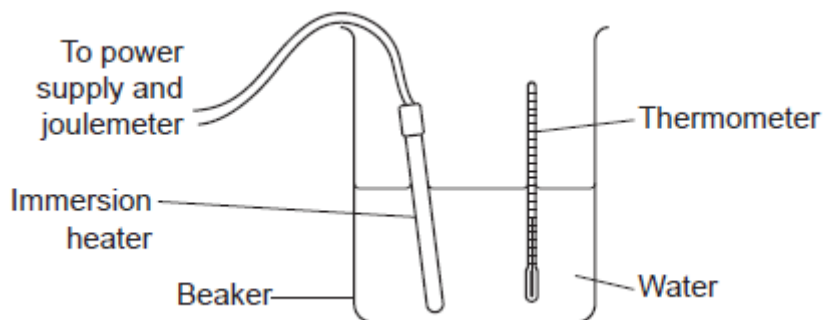
GCSE Physics A (Gateway)

J249/01 Physics A P1-P4 and P9 (Foundation Tier)

Question Set 3

1

A student completes an experiment to find the specific heat capacity of water.



He heats up 1 kg of water, using an immersion heater. He measures the temperature rise and calculates the specific heat capacity of the water.

Attempt	Energy supplied (J)	Temperature rise ($^{\circ}\text{C}$)	Specific heat capacity ($\text{J}/\text{kg}^{\circ}\text{C}$)
1	10 000	2	5000
2	21 000	4	5250
3	44 000	8	5500

(a) (i) Calculate the **mean** specific heat capacity.

Answer = $\text{J}/\text{kg}^{\circ}\text{C}$ [1]

(ii) Describe the conclusions that can be drawn from the data [3]

(b) The actual value for the specific heat capacity of water is $4200 \text{ J}/\text{kg}^{\circ}\text{C}$.

(i) Explain why the mean specific heat capacity calculated in (a)(i) is higher than the actual value.

[2]

- (ii) Write down **two** problems with this experiment **and** suggest how they could be solved.

Use the diagram and results table to help you.

Problem 1

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Solution

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Problem 2

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Solution

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[4]

Total Marks for Question Set 3: 10

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