

GCSE Physics A (Gateway)

J249/03 Physics A P1-P4 and P9 (Higher Tier)

Question Set 9

1

A student puts an ice cube into a beaker. The mass of the ice cube is 40 g.

The ice cube melts.

- (a) (i) Write down the mass of the water produced.

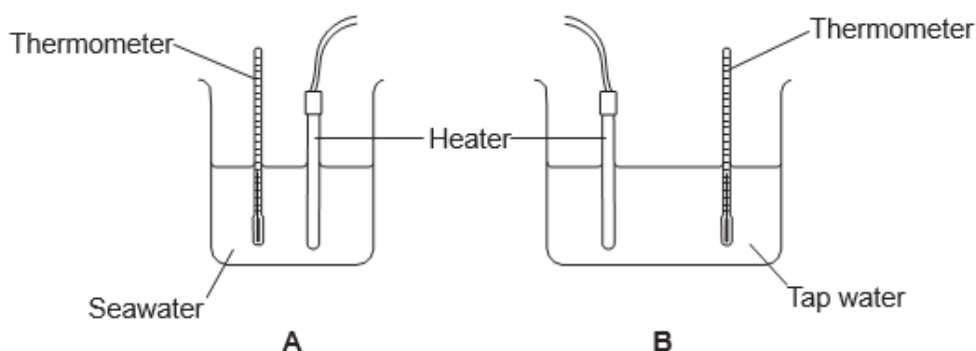
Mass = 40 g

- (ii) Explain your answer to (a)(i). *Because none of the ice cube has been removed therefore when melted it will be the same amount.* [1]

- (b) Describe **one** difference between a **physical change** and a **chemical change**.
A chemical change means the kind of matter changes whereas in physical change the kind of matter doesn't [2]

- (c) A student does an experiment to find the difference between the specific heat capacities of seawater and tap water.

The student places a heater and a thermometer into two beakers, **A** and **B**. Look at the diagram.



- (i) There are 5 steps to the method for this experiment.

Complete the missing steps for this method.

Step 1 – Put seawater into beaker **A** and tap water into beaker **B**.

Step 2 – *measure the initial temperatures of beaker A and B.*

Step 3 – *turn the heaters in beaker A and B on*

Step 4 – *measure the final temperatures of beaker A and B*

Step 5 – Calculate the temperature change of beaker **A** and beaker **B**.

- (ii) Suggest **one** mistake the student made when choosing their equipment. [3]

They didn't insulate their beaker [1]

Suggest **two** improvements to the method followed

- 1 To insulate their beaker
- 2 Cover the immersion heater
fully with the water .

[2]

Total Marks for Question Set 9: 10

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