2 **(a)** Use the kinetic theory of matter to explain why melting requires energy but there is no change in temperature.

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.....

.....

..... [3]

(b) Define *specific latent heat of fusion*.

.....

.....

..... [2]

(c) A block of ice at 0 °C has a hollow in its top surface, as illustrated in Fig. 2.1.

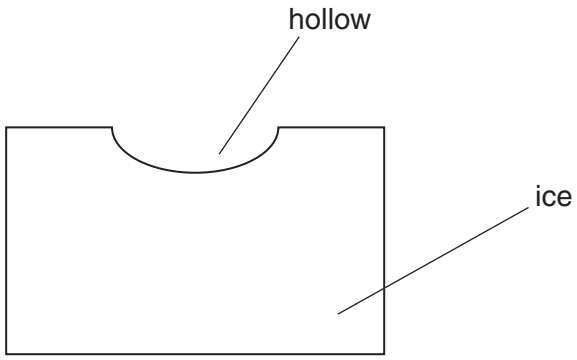

Fig. 2.1

A mass of 160 g of water at 100 °C is poured into the hollow. The water has specific heat capacity 4.20 kJ kg^{-1} K^{-1}. Some of the ice melts and the final mass of water in the hollow is 365 g.

(i) Assuming no heat gain from the atmosphere, calculate a value, in kJ kg^{-1}, for the specific latent heat of fusion of ice.

specific latent heat = ... kJ kg^{-1} [3]

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(ii) In practice, heat is gained from the atmosphere during the experiment. This means that your answer to **(i)** is not the correct value for the specific latent heat.
State and explain whether your value in **(i)** is greater or smaller than the correct value.

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..... [2]