OCR
Oxford Cambridge and RSA

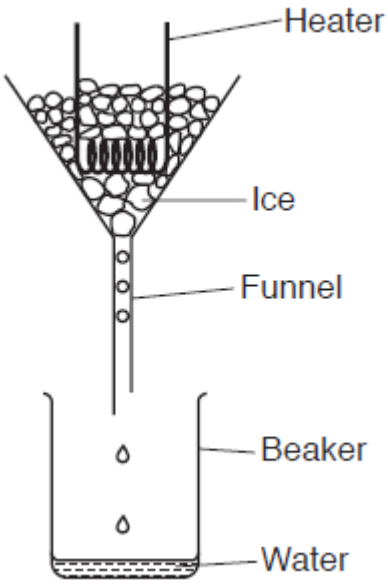
GCSE Physics A (Gateway)

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

Question Set 6

1 Two students design an experiment to find the specific latent heat of water.

They set up their equipment as shown in the diagram.



The students also have access to a power supply, a voltmeter, an ammeter, a stop-clock and a top-pan balance.

(a)* Explain how the students could use this equipment to determine an accurate value for the specific latent heat of water.

[6]

(b) The students find that 250g of ice takes 95kJ of energy to change state.

Calculate the specific latent heat.

Answer = ... J / kg

[3]

Total Marks for Question Set 6: 9

Equations in physics

(final velocity)^2 – (initial velocity)^2 = 2 × acceleration × distance

change in thermal energy = mass × specific heat capacity × change in temperature

thermal energy for a change in state = mass × specific latent heat

energy transferred in stretching = 0.5 × spring constant × (extension)^2

potential difference across primary coil × current in primary coil = potential difference across secondary coil × current in secondary coil

Higher tier only –

force on a conductor (at right angles to a magnetic field) carrying a current = magnetic flux density × current × length