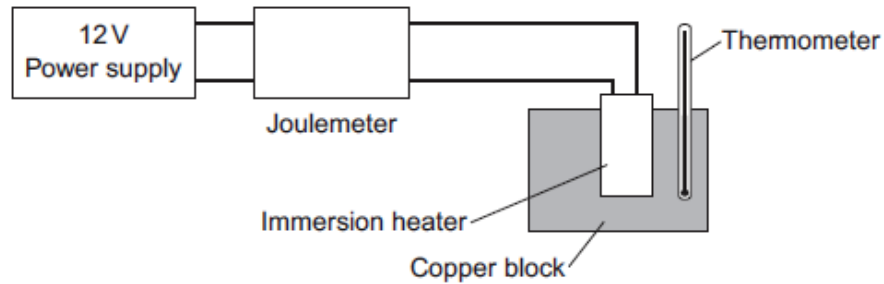


- Q1.** A student used the apparatus in **Figure 1** to obtain the data needed to calculate the specific heat capacity of copper.

Figure 1

The initial temperature of the copper block was measured.

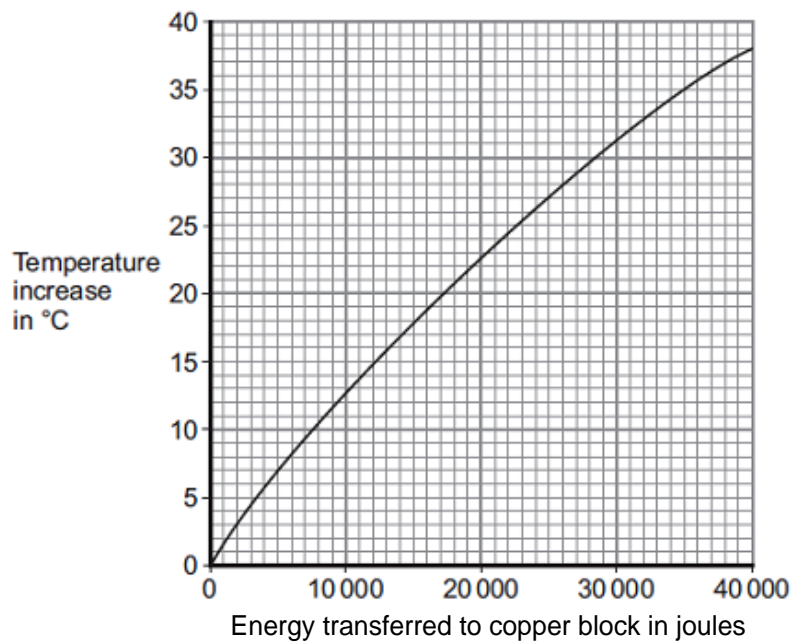
The power supply was switched on.

The energy transferred by the heater to the block was measured using the joulemeter.

The temperature of the block was recorded every minute.

The temperature increase was calculated.

Figure 2 shows the student's results.

Figure 2

- (a) Energy is transferred through the copper block.

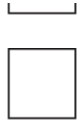
What is the name of the process by which the energy is transferred?

Tick (✓) **one** box.

Conduction

Convection

Radiation



(1)

- (b) Use **Figure 2** to determine how much energy was needed to increase the temperature of the copper block by 35 °C.

..... joules

(1)

- (c) The copper block has a mass of 2 kg.

Use your answer to part (b) to calculate the value given by this experiment for the specific heat capacity of copper. Give the unit.

Use the correct equation from the Physics Equations Sheet.

.....
.....
.....
.....

Specific heat capacity =

(3)

- (d) This experiment does **not** give the correct value for the specific heat of copper.

Suggest **one** reason why.

.....
.....

(1)

(Total 6 marks)

M1. (a) conduction 1

(b) 35 000 1

(c) 500
their (b) = 2 x c x 35 correctly calculated scores 2 marks
allow 1 mark for correct substitution,
ie 35000 = 2 x c x 35
or
their (b) = 2 x c x 35 2

J / kg°C 1

(d) energy lost to surroundings
or
energy needed to warm heater
accept there is no insulation (on the copper block)
*do **not** accept answers in terms of human error or poor results or defective equipment* 1

[6]

