Name of the Student:_____
Max. Marks : 10 Marks **Time : 10 Minutes**

Q1.

As part of the testing of different types of steel, a steelworker needs to obtain a temperature-time graph for **solidifying** molten steel.

Figure 6 shows an arrangement the steelworker could use.

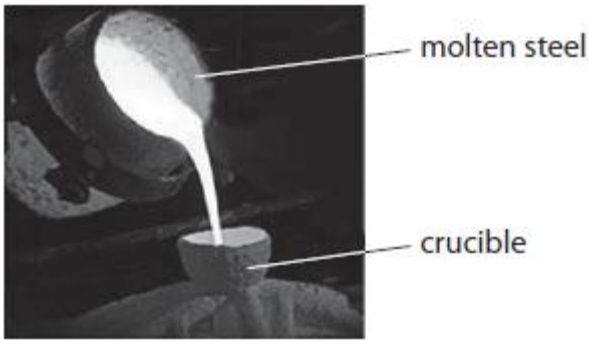

Figure 6

The following devices are available to the steel worker.
The melting point of these steels is between 1425 and 1540 °C

device	range of temperatures	other notes
Thermocouple thermometer	−50 to 1800 °C	Fast response time Probe inserted into melt
Infrared thermometer (pyrometer)	1200 to 2000 °C	Remotely read, using infrared radiation, measures the temperature of the surface it is aimed at
Platinum resistance thermometer	−200 to 850 °C	The most accurate of thermometers based on how resistance changes with temperature

Describe how the steelworker could obtain a temperature-time graph for steel as it goes from the liquid to the solid state.

(4)

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(Total for question = 4 marks)

Q2.

A student uses the apparatus in Figure 3 to determine the specific heat capacity of water.

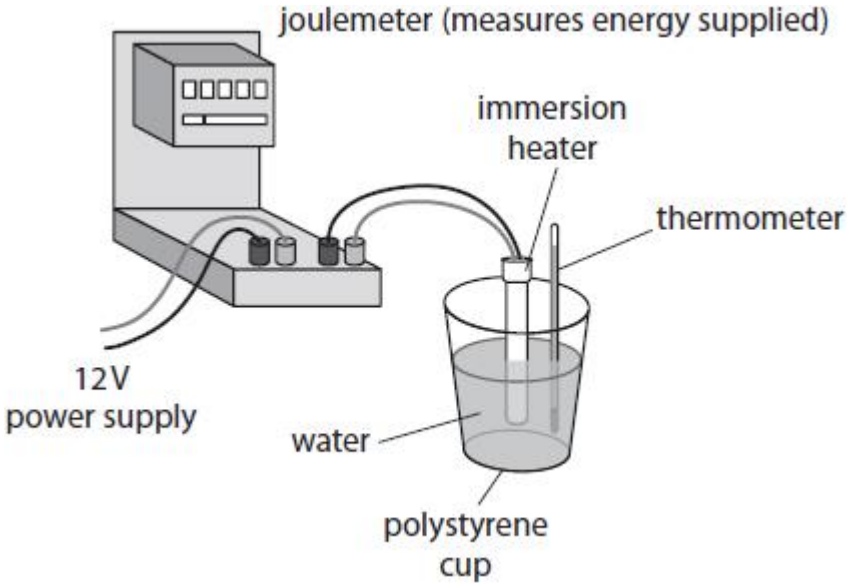

Figure 3

The student decides to measure the temperature of the water every minute while it is being heated.

Figure 4 shows a graph of the student's results.

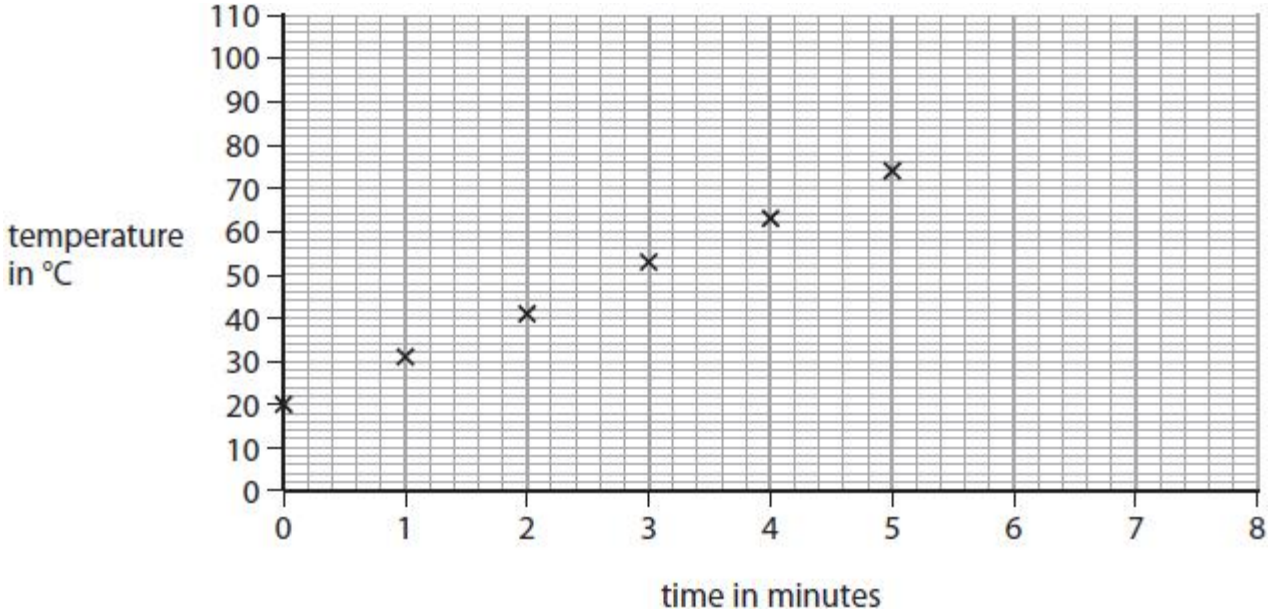

Figure 4

Predict the temperature of the water if the heating continues up to 8 minutes.

(1)

temperature of the water = ... °C

(Total for question = 1 mark)

Q3.

Figure 4 shows a shed made mostly of concrete blocks.

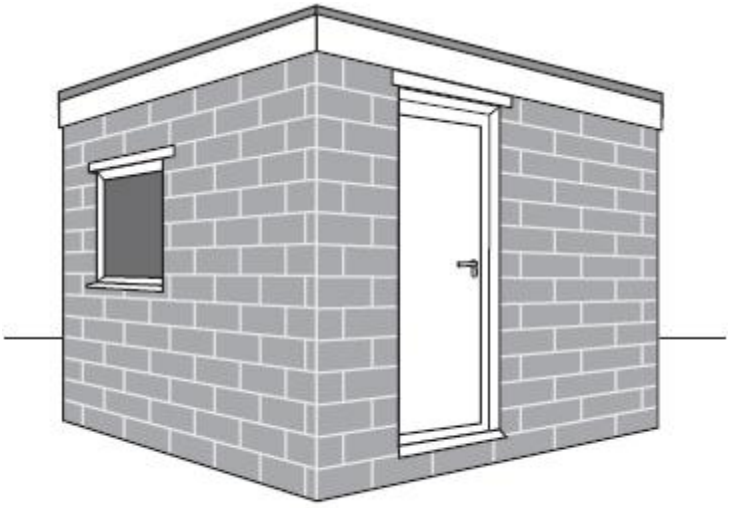

Figure 4

State **two** practical ways to reduce heat loss from this shed.

(2)

1 .....

.....

2 .....

.....

(Total for question = 2 marks)

Q4.

A student determines the volume of a piece of metal by measuring the volume of water that it displaces.
The student wrote the following in his notebook.

I put some water into a measuring cylinder.
I put the piece of metal into the water in the measuring cylinder.
I took the reading of the new water level in the measuring cylinder.
This was the volume of the piece of metal.

The student's description is incomplete.

Suggest **two** sentences that the student could have included to provide a more complete description of the correct procedure.

(2)

1 .....

.....

2 .....

.....

(Total for question = 2 marks)

Q5.

Answer the question with a cross in the box you think is correct ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

When water boils and turns into steam, there are changes in the arrangement of particles and the density.

Which of these shows the changes?

(1)

		space between particles in steam	density of steam
☒	**A**	bigger than in water	greater than water
☒	**B**	bigger than in water	less than water
☒	**C**	smaller than in water	greater than water
☒	**D**	smaller than in water	less than water

(Total for question = 1 mark)