Name of the Student:_____
Max. Marks : 17 Marks **Time : 17 Minutes**

Q1.

* A student has two metal strips and a ruler, as shown in Figure 15.

A teacher tells the student that

- one metal strip is made of aluminium
- the other metal strip is made of stainless steel.

The student looks up data in a reference book, finding some density values:

density of aluminium = 2710 kg / m^3

density of stainless steel = 7850 kg / m^3

The student has access to more of the same metal strips, if needed, and may ask for any extra measuring devices.

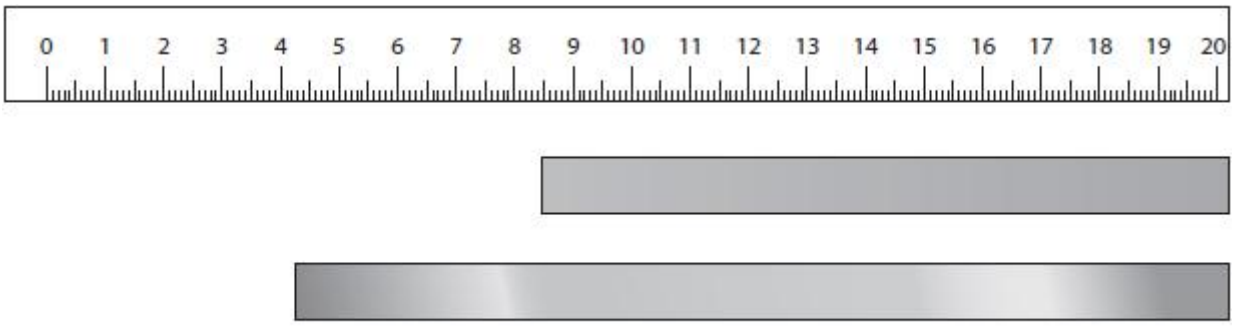

Figure 15

Plan how the student could confirm the teacher's statements, by determining the density of each of the strips as accurately as possible.

(6)

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(Total for question = 6 marks)

Q2.

A student uses the apparatus in Figure 17 to determine the specific heat capacity of water.

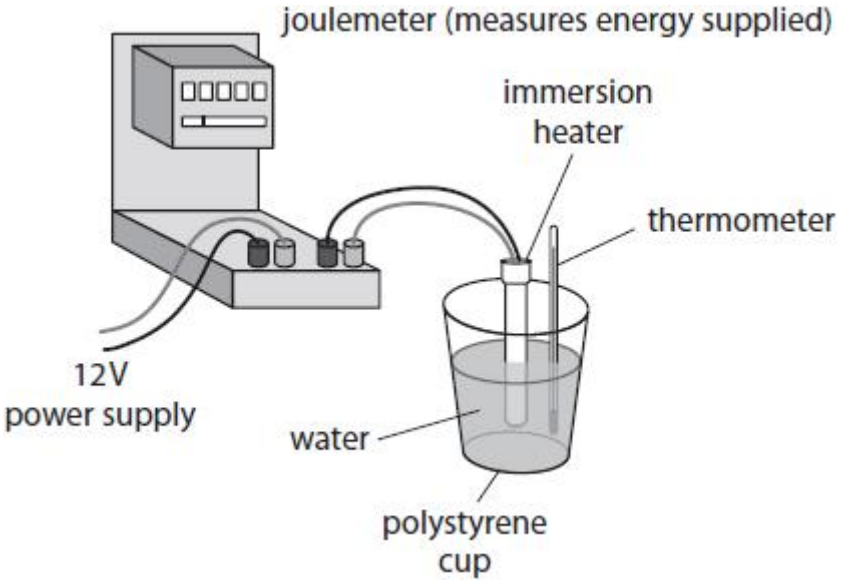

Figure 17

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

Figure 18 shows a graph of the student's results.

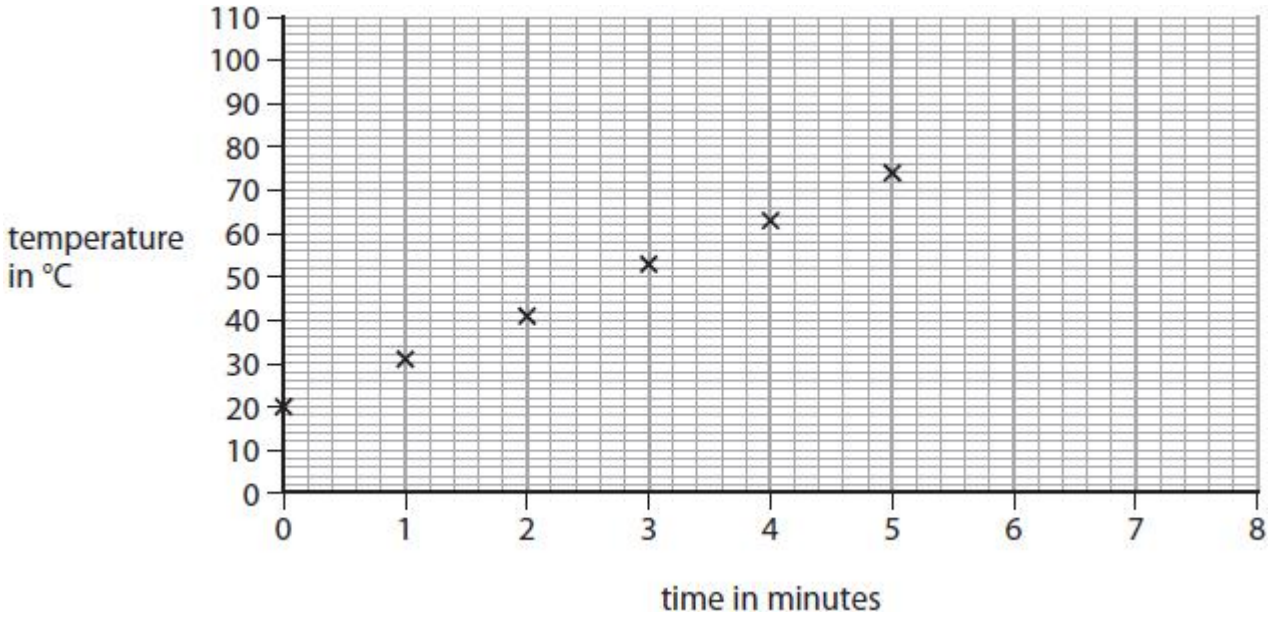

Figure 18

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.

Which row of the table is correct for water compared to steam?

(1)

		the density of water is	the water molecules are
☐	**A**	bigger	smaller
☐	**B**	smaller	bigger
☐	**C**	bigger	closer together
☐	**D**	smaller	further apart

(Total for question = 1 mark)

Q4.

The photograph shows an oxygen cylinder that can be used in an ambulance.

(i) Explain how particles of oxygen gas exert a pressure on the inside of the cylinder.

(2)

.....

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.....

(ii) This cylinder can release 340 litres of oxygen at a pressure of 101 000 Pa.

The inside volume of the cylinder is 2.5 litres.
Use the equation

$$P_2 = \frac{P_1 V_1}{V_2}$$

to calculate the pressure of the oxygen in the cylinder before the gas is released.

(3)

pressure of oxygen = ... Pa

Q5.

Figure 14 shows a shed made mostly of concrete blocks.

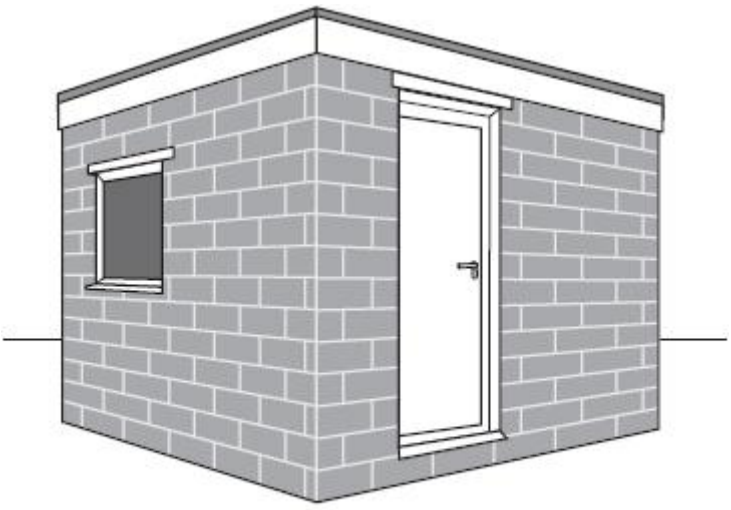

Figure 14

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

(2)

1 .....

.....

2 .....

.....

(Total for question = 2 marks)

Q6.

Room temperature is 20 °C.

What is 20 °C on the kelvin temperature scale?

(1)

- ☒ **A** 293 K
- ☒ **B** 273 K
- ☒ **C** 253 K
- ☒ **D** 120 K

(Total for question = 1 mark)

Q7.

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)