

Name of the Student: _____

Max. Marks : 20 Marks

Time : 20 Minutes

Q1.

Describe what happens when a substance experiences sublimation.

(2)

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(Total for question = 2 marks)

Q2.

Figure 10 shows some apparatus that may be used to determine the specific heat capacity of water.

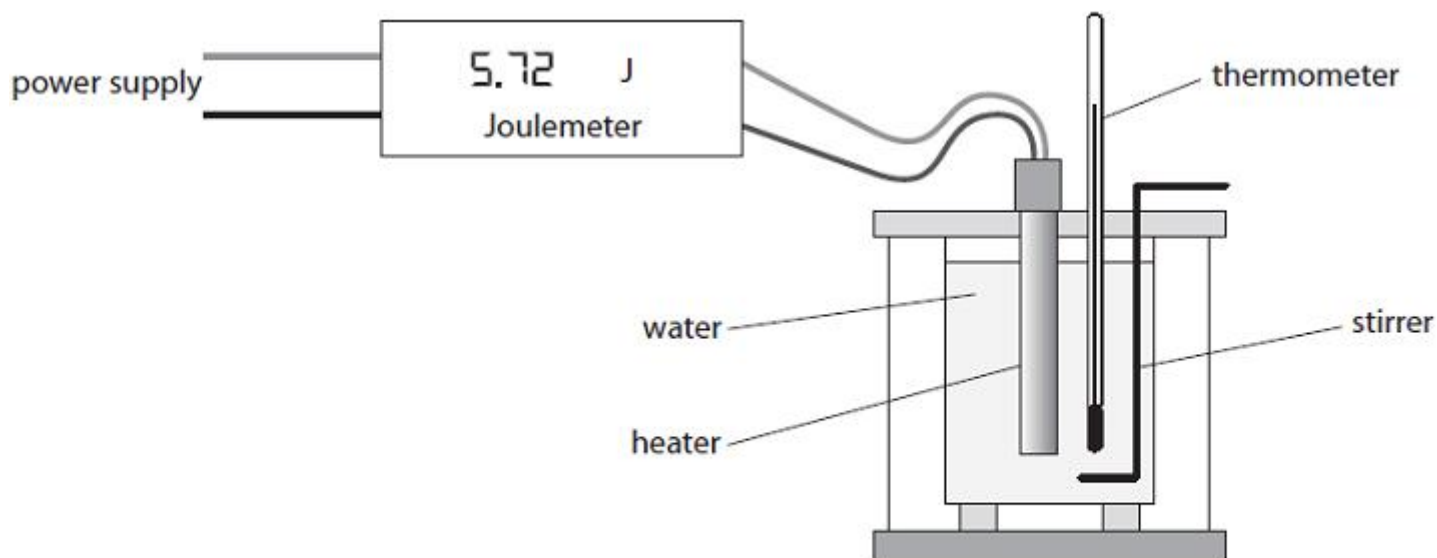


Figure 10

A student measures the initial temperature of the water.

The power supply is switched on for 10 minutes and then switched off.

Explain how the student should then obtain an accurate reading for the final temperature of the water, to be used in the calculation of the specific heat capacity.

(3)

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(Total for question = 3 marks)

Q3.

Figure 4 gives information about the density of aluminium.

	density in g/cm ³
solid aluminium	2.70
liquid aluminium	2.38

Figure 4

Explain the difference between the density of solid aluminium and the density of liquid aluminium in terms of the arrangement of particles.

(2)

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(Total for question = 2 marks)

Q4.

* A container of gas is at room temperature.

The gas is then heated.

The volume of the container remains the same.

By considering changes in velocities of the gas particles, explain how the temperature increase affects

- the average kinetic energy of the particles
- the pressure the particles exert on the walls of the container.

(6)

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(Total for question = 6 marks)

Q5.

Explain the difference between the term 'specific heat capacity' and the term 'specific latent heat' when applied to heating substances.

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(Total for question = 2 marks)

Q6.

Figure 3 shows some water in a measuring cylinder and a lump of iron.

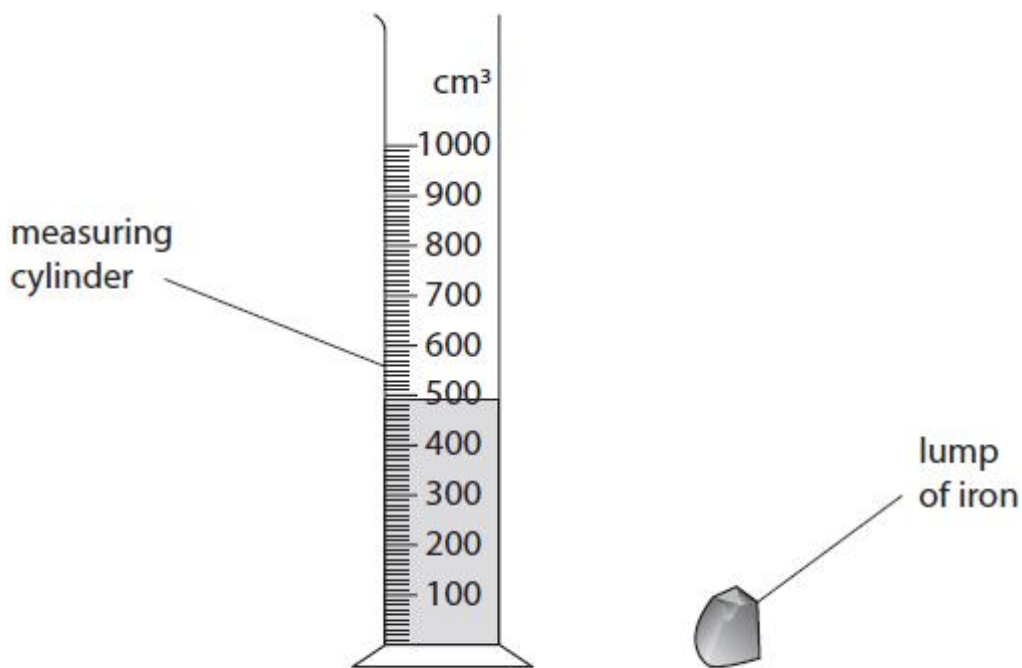


Figure 3

The lump of iron is lowered fully into the water.

The water level in the measuring cylinder rises to 530 cm³.

The density of iron is 7.9 g / cm³.

To find the mass of the lump of iron you would use the equation

$$\text{density} = \frac{\text{mass}}{\text{volume}}$$

A piece of wood has a similar shape and volume to the lump of iron.

The density of the wood is 0.82 g / cm³.

The density of water is 1.00 g / cm³

Explain why the method used for the lump of iron cannot be used to determine the mass of the piece of wood.

(2)

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(Total for question = 2 marks)

Q7.

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 (☒).

Which of these changes of state describes sublimation?

(1)

- ☐ A from gas to liquid

- ☐ B from liquid to solid
- ☐ C from solid to gas
- ☐ D from solid to liquid

(Total for question = 1 mark)

Q8.

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 (☐).

Figure 12 shows a sealed aerosol can.



Figure 12

The sealed can is taken from a cold room into a warm room.

If the volume of the can remains the same, which of these does **not** change?

- ☐ A the pressure inside the can
- ☐ B the mean speed of the particles inside the can
- ☐ C the mean distance between the particles inside the can
- ☐ D the mean size of the momentum of the particles inside the can

(1)

(Total for question = 1 mark)

Q9.

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 (☐).

Which of these means changing state from solid directly to gas?

- ☐ A condensing

(1)

- ☐ B freezing
- ☐ C melting
- ☐ D sublimating

(Total for question = 1 mark)