

Changes of Heat, Specific Latent Heat

Question Paper

Level	GCSE (9-1)
Subject	Combined Science: Trilogy - Physics
Exam Board	AQA
Topic	6.3 Particle Model of Matter
Sub-Topic	Changes of Heat, Specific Latent heat
Difficulty Level	Bronze Level
Booklet	Question Paper

Time Allowed: 12 minutes

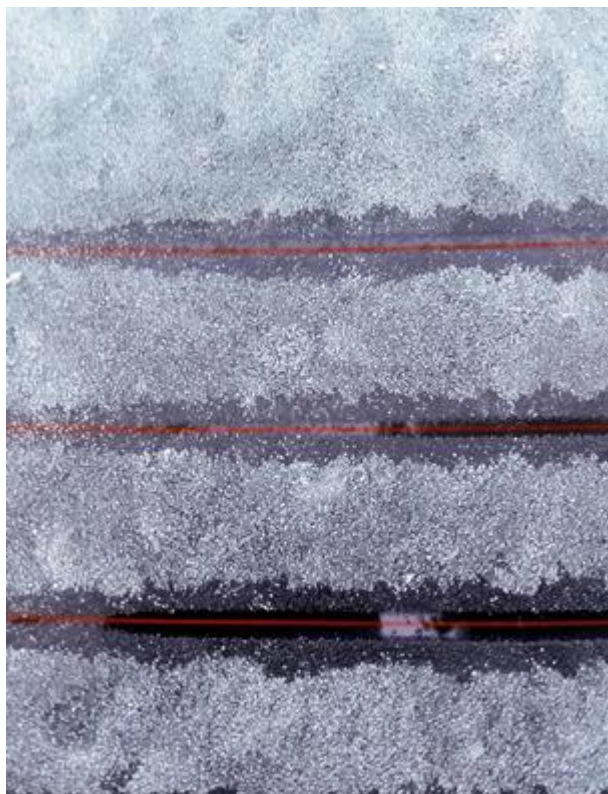
Score: /11

Percentage: /100

Grade Boundaries:

Q1.Figure 1 shows solid ice on a car's rear window.

Figure 1

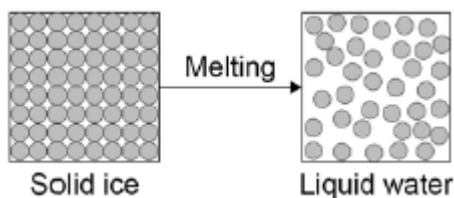


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The glass window contains an electrical heating element.

- (a) Use the particle model in **Figure 2** to describe how the heating element causes the arrangement of the ice particles to change as the ice melts.

Figure 2



You should include a description of how the particles are arranged in the solid ice and in the water.

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(6)

- (b) A car manufacturer tests different heating elements by measuring how long it takes ice to melt.

During the test some variables must be controlled.

Identify **two** control variables in the car manufacturer's test.

Tick **two** boxes.

The colour of the car

☐

The current in the heating element

☐

The mass of ice

☐

The size of the car

☐

The time taken for the ice to melt

☐

(2)

- (c) Some of the energy supplied by the heater causes the ice to melt without the temperature of the ice increasing.

What is the name given to this energy supplied by the heater?

Tick **one** box.

Latent heat of freezing

Latent heat of fusion

Latent heat of vaporisation

(1)

- (d) When the heater is supplied with 120 J of energy each second, the internal energy of the ice increases by 45 J each second.

Use the following equation to calculate the efficiency of the heater.

$$\text{Efficiency} = \frac{\text{Output energy transfer}}{\text{input energy transfer}}$$

Give your answer to two decimal places.

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Efficiency =

(2)

(Total 11 marks)