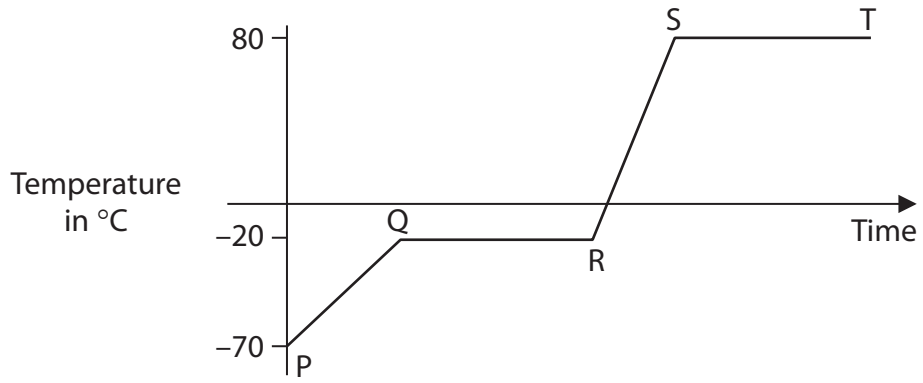
Answer ALL questions.

1 The diagram shows the temperature-time graph for a substance which is heated at a constant rate.



(a) (i) Which section of the graph shows when the substance is melting?

(1)

☒ **A** PQ

☒ **B** QR

☒ **C** RS

☒ **D** ST

(ii) Which section of the graph shows when all the substance is a solid?

(1)

☒ **A** PQ

☒ **B** QR

☒ **C** RS

☒ **D** ST

(iii) Draw particles in the box to show the arrangement of particles when the substance is a gas.

(1)

(iv) Which of these statements best describes the motion of particles in a gas?

(1)

- ☒ **A** they vibrate about fixed points
- ☒ **B** they are stationary
- ☒ **C** they slide past each other
- ☒ **D** they move quickly and randomly

(b) (i) Name a piece of apparatus that could be used to measure the temperature of the substance.

(1)

.....

(ii) Determine the boiling point of this substance.

(1)

boiling point = ... °C

(c) The substance has a mass of 1.2 kg.

Calculate the energy required to raise the temperature of the substance from 10 °C to 37 °C.

[assume specific heat capacity of substance = 840 J/kg °C]

(3)

energy = ... J

(Total for Question 1 = 9 marks)