2.1 States of Matter and Changes of State: 10-minute Pack

Total Marks

EDEXCEL 4CH1 · Calculator allowed · about 10 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 In the simple particle model for solids, describe the arrangement of the particles and how tightly they are packed. Context: states of matter topic.

(Total for Question 1 is 1 mark)

2 State how the motion of particles in a liquid compares with that in a solid. Context: particle movement in different states of matter.

(Total for Question 2 is 1 mark)

© Revision Library | revisionlibrary.co.uk

3 Complete the diagram: a simple labelled sketch is required showing particle arrangement for a solid, liquid and gas in separate boxes. Describe one label for each box that explains particle movement. Context: diagram labelling of particle models.

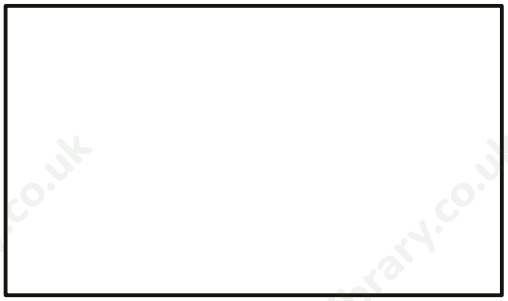
Solid



Liquid



Gas



(Total for Question 3 is 2 marks)

---

4 State what is observed and explain particle behaviour when water vapour is cooled and condenses on a cold surface. Context: condensation as a change of state.

(Total for Question 4 is 2 marks)

© Revision Library | revisionlibrary.co.uk

5 Describe what happens to particle movement and spacing when a solid is heated to become a liquid. Context: melting and particle behaviour.

(Total for Question 5 is 2 marks)

6 Explain, in terms of particles, why gases are much easier to compress than liquids. Context: compressibility and particle spacing.

(Total for Question 6 is 2 marks)

© Revision Library | revisionlibrary.co.uk

Mark scheme · 2.1 States of Matter and Changes of State: 10-minute Pack

Question 1

particles closely packed in a regular fixed arrangement **B1**

Answer: Particles are closely packed in a regular fixed arrangement.

Question 2

particles move past each other and can flow **B1**

Answer: Particles move past each other and can flow; they have more motion than in a solid.

Question 3

arrangements in all three boxes: solid particles closely packed in a regular arrangement; liquid particles close together in a disordered arrangement; gas particles widely spaced **B1**

movement labels for all three boxes: solid particles vibrate about fixed positions; liquid particles move/slide past each other; gas particles move randomly in all directions; accept equivalent labels **B1**

Answer: Solid: closely packed, regular arrangement, vibrate about fixed positions; Liquid: close, disordered arrangement, move/slide past each other; Gas: widely spaced, move randomly in all directions.

Question 4

observation: droplets form on the cold surface **B1**

explanation: gas particles lose energy, slow down and come closer together to form liquid **B1**

Answer: Droplets form on the cold surface; gas particles lose energy, slow down and come closer together to form liquid.

Question 5

particles gain energy and move faster **B1**

particles break fixed positions, move past each other and spacing increases slightly **B1**

Answer: Particles gain energy and move faster; they break fixed positions and can move past each other so spacing increases slightly.

Question 6

gas particles are far apart with large spaces between them **B1**

these large spaces can be reduced when compressed, whereas liquid particles are already close together so they cannot be compressed much **B1**

Answer: Gas particles are far apart with large gaps that can be pushed closer together when compressed; liquids have particles already close so there is little space to reduce.

© Revision Library | revisionlibrary.co.uk