3.20 Density and the Particle Model of Matter: 10-minute Pack

AQA 8464 · Calculator allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Complete the sentences below about laboratory equipment.

(a) State the piece of equipment used to measure the mass of an object in the laboratory. **(1)**

(b) State the piece of equipment used to measure the volume of a liquid in the laboratory. **(1)**

(Total for Question 1 is 2 marks)

2 Explain, in terms of the arrangement and spacing of particles, why gases have a much lower density than solids.

(Total for Question 2 is 2 marks)

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3 A rectangular block of metal alloy has a mass of 540 g and a volume of 60 cm^3.
Calculate the density of the metal alloy. Use the equation: density = mass / volume

(Total for Question 3 is 2 marks)

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4 Match each key term to its correct definition by writing the correct letter next to each term.
Definitions:
A - the change of state in which a solid turns directly into a gas, without becoming a liquid
B - the mass per unit volume of a material

(a) density **(1)**

(b) sublimation **(1)**

(Total for Question 4 is 2 marks)

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Mark scheme · 3.20 Density and the Particle Model of Matter: 10-minute Pack

Question 1

(a) a (top-pan/electronic) balance **B1**

(a) Answer: A balance (top-pan balance).

(b) a measuring cylinder **B1**

(b) Answer: A measuring cylinder.

Question 2

particles in a gas are spread much further apart, with large gaps between them, compared to a solid where particles are closely packed **B1**

a given volume of gas therefore contains far fewer particles (much less mass) than the same volume of solid, so the density of a gas is much lower **B1**

Answer: Gas particles are far apart with large gaps between them, so a given volume of gas has much less mass (and lower density) than the same volume of a solid.

Question 3

540 / 60 substituted **M1**

9 g/cm^3 (9.0) cao **A1**

Answer: 9 g/cm^3

Question 4

(a) B **B1**

(a) Answer: B

(b) A **B1**

(b) Answer: A

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