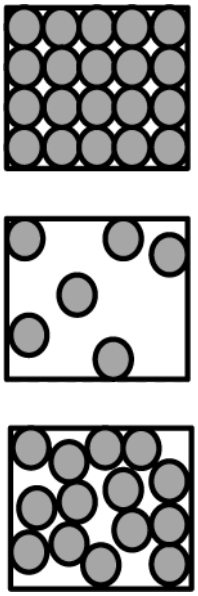
1.

(i) Below are diagrams showing the particle arrangements in solids, liquids and gases.

Match the diagram to the correct label.



Gas

Liquid

Solid

[2]

(ii) Sound waves travel through materials by making the particles in the material vibrate.

Use this idea and your knowledge of the particle model of matter to explain why sound travels much faster through water than through air.

---

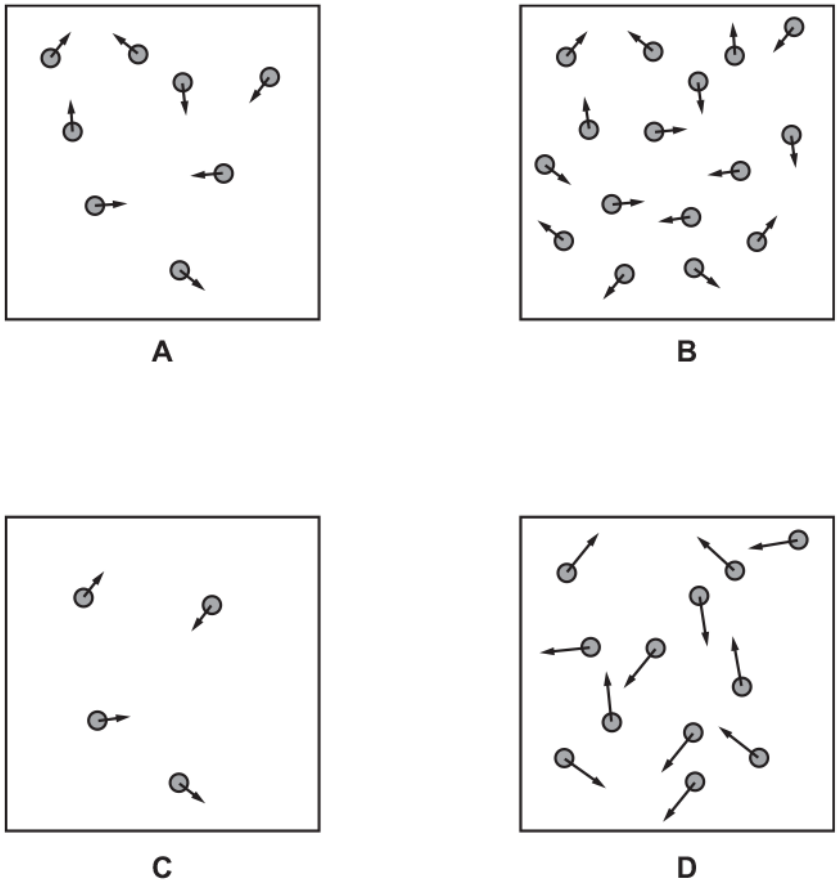
[2]

2. This question is about the particles in a gas and the pressure they exert on a container.

The diagram below shows four samples of the same gas in containers of the same size.

Each particle is shown as a circle.

The arrow on each particle shows its velocity.



Answer each question with one of the letters **A**, **B**, **C** or **D**.

(i) Which sample has the **fastest** particles?

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[1]

(ii) Which sample has the **greatest** density?

---------- [1]

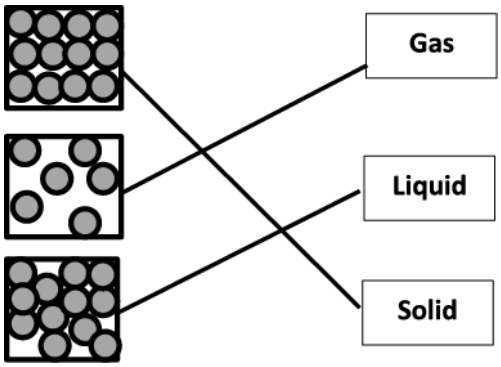
(iii) Which sample is at the **highest** temperature?

---------- [1]

(iv) Which sample has the **smallest** pressure?

---------- [1]

END OF QUESTION PAPER

Question			Answer/Indicative content	Marks	Guidance
1		i		2	1 correct 1 mark 2/3 correct 2 marks
		ii	In water (liquids) the particles are closer together ….. (1) ….makes it easier for vibrations to be transmitted (1)	2	must be comparative e.g. less separation must be comparative e.g. more easily
			Total	4	
2		i	D ✓	1 (AO 2.1)	
		ii	B ✓	1 (AO 2.1)	
		iii	D ✓	1 (AO 2.1)	
		iv	C ✓	1 (AO 2.1)	Examiner's Comments Candidates did well with these multiple choice questions. They found Q7(a)(iii) the most difficult. Some candidates may have thought they could not choose D again for Q7(a)(iii) having used it for Q7(a)(i). However, this is unlikely as most of these candidates had chosen two of same letter for other parts of Q7(a). Q7(a)(i) was also challenging for some candidates and it may have been that they over thought the question and attempted to assess whether B or D had the greater vector sum rather than the average speed of the individual particles.
			Total	4	