

Name of the Student: _____

Max. Marks : 17 Marks

Time : 17 Minutes

Q1.

When a diver is swimming under water, she breathes out bubbles of gas, as shown in Figure 27.



(Source: © mihtiander/123RF)

Figure 27

The bubbles of gas rise to the surface.
The temperature of the gas does not change.

Explain what happens to a bubble as it rises to the surface.
Your answer should refer to gas equations, kinetic theory and particles.

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(Total for question = 6 marks)

Q2.

Figure 23 gives information about the density of aluminium.

	density in g/cm^3
solid aluminium	2.70
liquid aluminium	2.38

Figure 23

Explain the difference between the density of solid aluminium and the density of liquid aluminium in terms of the arrangement of particles.

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(Total for question = 2 marks)

Q3.

Answer the question with a cross in the box you think is correct ☐ . If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☐ .

When the pressure in a container of gas increases, the particles of the gas

(1)

- ☐ **A** hit the sides of the container less often
- ☐ **B** hit the sides of the container more often
- ☐ **C** move with lower speeds
- ☐ **D** vibrate more energetically about fixed positions

(Total for question = 1 mark)

Q4.

A piece of wood has a similar shape and volume to the lump of iron.

The density of the wood is 0.82 g / cm^3 .

The density of water is 1.00 g / cm^3

Explain why the method used in part (b) cannot be used to determine the mass of the piece of wood.

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(Total for question = 2 marks)

Q5.

Some gas is trapped in a container similar to the container in Figure 19a.

The gas is compressed at a constant temperature.

Explain, **in terms of gas particles**, why the pressure of the gas increases when the volume decreases.

Your answer should refer to

- how the gas particles exert a pressure
- why the pressure increases when the volume decreases.

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(Total for question = 6 marks)