Kinetic Molecular of Matter – 2019 Nov

1. 0625/32/O/N/19/No.7

All matter is made up of atoms and molecules.

(a) Describe the arrangement, separation and motion of gas molecules.

arrangement .....

separation .....

motion .....

[3]

(b) The motion of smoke particles in air can be observed using a smoke cell and microscope. Fig. 7.1 shows the arrangement.

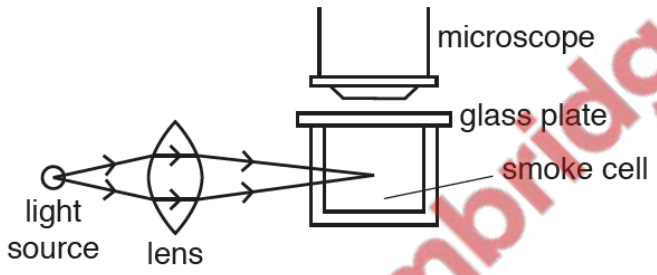

Fig. 7.1

Smoke is placed inside the glass smoke cell. Light enters from the side of the smoke cell.

A student looks through the microscope. She sees tiny spots of light moving. Each spot of light is a smoke particle.

Fig. 7.2 represents the path of a smoke particle seen in the eyepiece of the microscope.

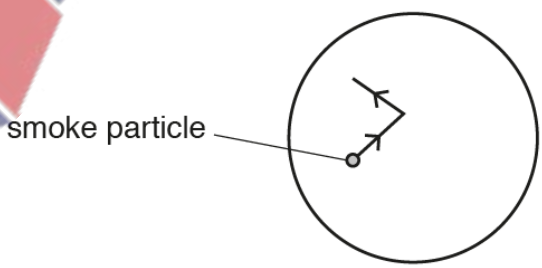

Fig. 7.2

(i) On Fig. 7.2, continue the path of the smoke particle. [2]

(ii) State the term used to describe the movement of the smoke particle.

..... [1]

[Total: 6]

2. 0625/42/O/N/19/No.3

Fig. 3.1 shows a gas contained in a cylinder enclosed by a piston.

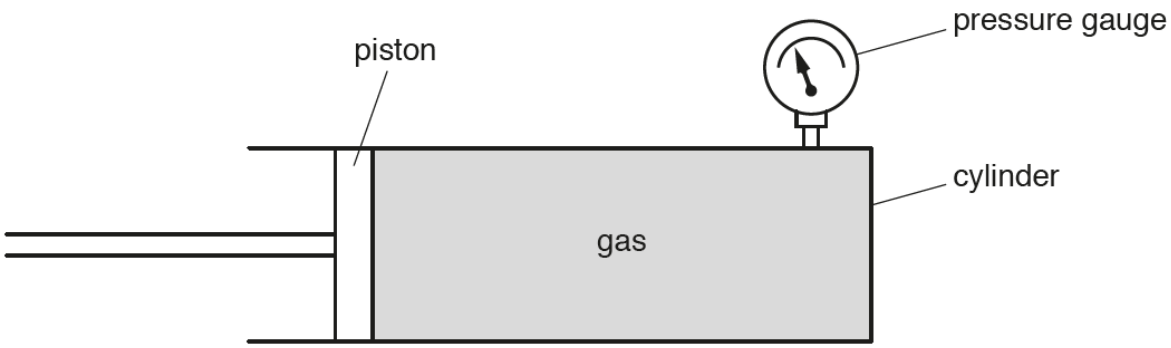

Fig. 3.1

(a) Describe, in terms of momentum of the molecules, how a pressure is exerted on the walls of the cylinder.

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.....

.....

..... [3]

(b) The piston is pushed into the cylinder. The volume decreases from 820 cm^3 to 330 cm^3 . The pressure gauge measures the pressure after compression as 20 000 Pa. The temperature remains constant.

Calculate the value of the pressure before the gas was compressed.

pressure = ... [3]

[Total: 6]

3. 0625/43/O/N/19/No.4

Solids have a fixed shape. Liquids adapt to the shape of their container. Gases fill their container.

Explain in terms of forces between molecules and arrangement of molecules, why solids, liquids and gases have these properties.

Solids .....

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Liquids .....

.....

.....

Gases .....

.....

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[6]

[Total: 6]