The Particulate nature of matter – 2022 Nov IGCSE Chemistry 0620

1. Nov/2022/Paper_11/No.1

Which row describes the spacing and arrangement of particles in a solid, a liquid and a gas?

	solid	liquid	gas
A	close together and randomly arranged	close together and regularly arranged	far apart and randomly arranged
B	close together and randomly arranged	far apart and randomly arranged	close together and randomly arranged
C	close together and regularly arranged	close together and randomly arranged	far apart and randomly arranged
D	close together and regularly arranged	close together and regularly arranged	close together and randomly arranged

2. Nov/2022/Paper_12/No.1

Which statement describes the particles in a liquid?

A They are close together but have no regular arrangement.

B They are densely packed in a regular order.

C They move freely at high speed and are widely spaced.

D They vibrate but do not move from a fixed position.

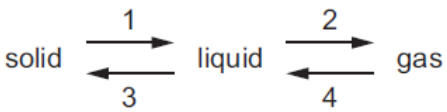
3. Nov/2022/Paper_13/No.1

Which row describes the separation and motion of particles in a gas?

	separation of particles	motion of particles
A	close together	slow movement
B	close together	fast movement
C	widely spaced	slow movement
D	widely spaced	fast movement

4. Nov/2022/Paper_21/No.1

The diagram shows the changes of state between a solid, a liquid and a gas.



In which changes of state is energy being given out?

A 1 and 2 **B** 1 and 4 **C** 2 and 3 **D** 3 and 4

5. Nov/2022/Paper_22/No.1

The rate of diffusion of three gases, ammonia, carbon dioxide and methane, is measured.

What is the order of the rate of diffusion of the gases from slowest to fastest?

A $CO_2 \rightarrow NH_3 \rightarrow CH_4$

B $CO_2 \rightarrow CH_4 \rightarrow NH_3$

C $CH_4 \rightarrow NH_3 \rightarrow CO_2$

D $NH_3 \rightarrow CH_4 \rightarrow CO_2$

6. Nov/2022/Paper_22/No.2

Which description of Brownian motion is correct?

A random movement of particles due to bombardment by larger particles

B random movement of particles due to bombardment by smaller particles

C random movement of particles from a high concentration to a low concentration

D random movement of particles from a low concentration to a high concentration

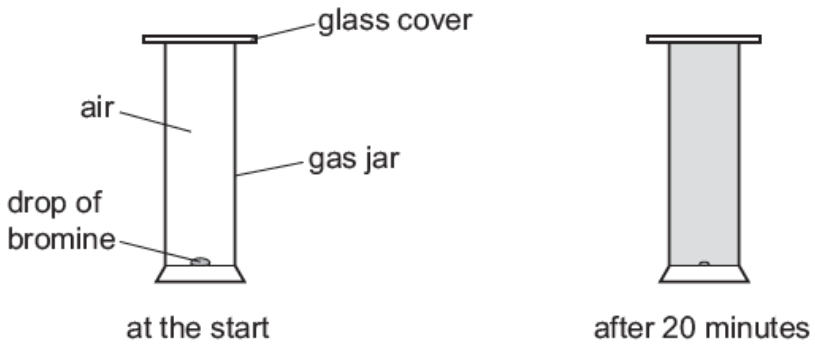
7. Nov/2022/Paper_23/No.1

Which gas diffuses the most slowly?

A CH_4 **B** CO_2 **C** H_2 **D** NH_3

8. Nov/2022/Paper_31/No.4(c)

(c) Bromine is a red-brown liquid.
A drop of liquid bromine is placed in a gas jar.
After 20 minutes the red-brown colour has spread throughout the gas jar.



Explain these observations using the kinetic particle model.

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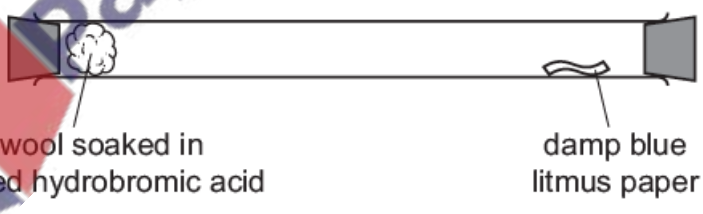
9. Nov/2022/Paper_32/No.4(c)

(c) Concentrated aqueous hydrobromic acid releases fumes of acidic hydrogen bromide gas.

A long glass tube is set up as shown.



At first the blue litmus paper does not turn red.
After a short time the blue litmus paper turns red.

Explain these observations using the kinetic particle model.

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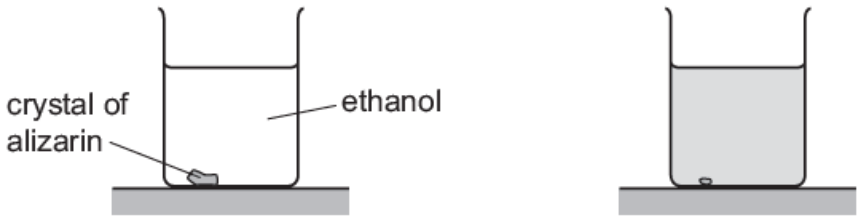
10. Nov/2022/Paper_33/No.4(c)

(c) Sodium hydroxide is used to make the red dye alizarin.
Alizarin is soluble in ethanol.

A crystal of alizarin is placed in a beaker of ethanol.
After a few hours, the red colour has spread throughout the beaker.



at the start

after a few hours

Explain these observations using the kinetic particle model.

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