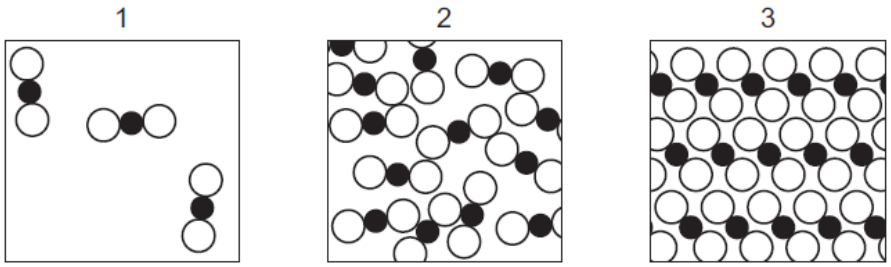
The Particulate nature of matter – 2022 IGCSE

1. June/2022/Paper_11/No.1

Diagrams of the three states of matter for carbon dioxide are shown.



Which two diagrams show the states of matter before and after the sublimation of carbon dioxide?

A 2 to 1 **B** 2 to 3 **C** 3 to 1 **D** 3 to 2

2. June/2022/Paper_11/No.5

Which row identifies an alloy, a pure metal and a non-metal?

	alloy	pure metal	non-metal
A	brass	carbon	copper
B	brass	copper	carbon
C	copper	brass	carbon
D	copper	carbon	brass

3. June/2022/Paper_12/No.1

Substances change state when their temperature is changed.

Which changes of state take place when the temperature of a substance is lowered?

1 boiling

2 condensation

3 freezing

4 melting

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

4. June/2022/Paper_12/No.5

Which row identifies an alloy, a pure metal and a non-metal?

	alloy	pure metal	non-metal
A	brass	carbon	copper
B	brass	copper	carbon
C	copper	brass	carbon
D	copper	carbon	brass

5. June/2022/Paper_13/No.1

Two different physical states of iodine are described.

In state 1, iodine exists as I_2 molecules that are widely spaced and in rapid random movement.

In state 2, iodine exists as I_2 molecules that are closely packed and only vibrate.

Iodine can be converted directly from state 2 to form state 1.

Which row about state 2 and the change from state 2 to state 1 is correct?

	state 2	the change from state 2 to state 1
A	liquid	evaporation
B	liquid	sublimation
C	solid	evaporation
D	solid	sublimation

6. June/2022/Paper_13/No.5

Which row identifies an alloy, a pure metal and a non-metal?

	alloy	pure metal	non-metal
A	brass	carbon	copper
B	brass	copper	carbon
C	copper	brass	carbon
D	copper	carbon	brass

7. June/2022/Paper_21/No.1

Which two gases will diffuse at the same rate, at the same temperature?

A carbon monoxide and carbon dioxide

B carbon monoxide and nitrogen

C chlorine and fluorine

D nitrogen and oxygen

8. June/2022/Paper_22/No.1

Which two gases will diffuse at the same rate, at the same temperature?

A carbon monoxide and carbon dioxide

B carbon monoxide and nitrogen

C chlorine and fluorine

D nitrogen and oxygen

9. June/2022/Paper_23/No.1

Which two gases will diffuse at the same rate, at the same temperature?

A carbon monoxide and carbon dioxide

B carbon monoxide and nitrogen

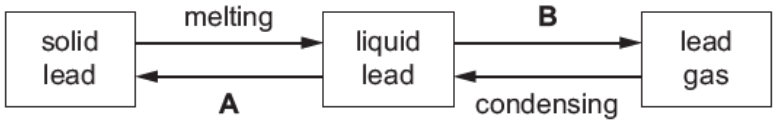
C chlorine and fluorine

D nitrogen and oxygen

10. June/2022/Paper_31/No.5(a, b)

This question is about Group IV elements and their compounds.

(a) The changes of state of lead are shown.



Name the changes of state represented by **A** and **B**.

A .....

B .....

[2]

(b) Use the kinetic particle model to describe the differences between liquid lead and lead gas in terms of:

- the separation of the particles .....

.....

.....

- the motion of the particles. .....

.....

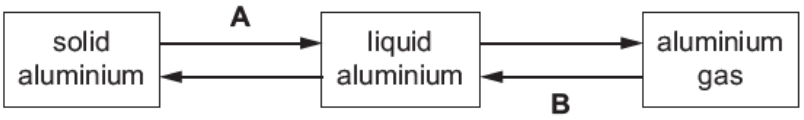
.....

[4]

11. June/2022/Paper_32/No.5(a, b)

This question is about aluminium.

(a) The changes of state of aluminium are shown.



Name the changes of state represented by **A** and **B**.

A .....

B .....

[2]

(b) Use the kinetic particle model to describe the differences between solid aluminium and liquid aluminium in terms of:

- the arrangement of the particles .....

.....

.....

- the separation of the particles. .....

.....

.....

[4]

12. June/2022/Paper_33/No.5(a _ b)

This question is about Group VI elements and their compounds.

(a) Name the changes of physical state when:

- oxygen gas is converted to liquid oxygen

.....

- solid sulfur is converted directly to sulfur gas.

.....

[2]

(b) Use the kinetic particle model to describe the differences between solid sulfur and sulfur gas in terms of:

- the arrangement of the particles

.....

.....

- the motion of the particles.

.....

.....

[4]

13. March/2022/Paper_22/No.1

Which change of state is an exothermic process?

A condensation

B evaporation

C melting

D sublimation

14. March/2022/Paper_22/No.2

In which state does 1 dm^3 of methane contain the most particles?

A gas at 100 °C

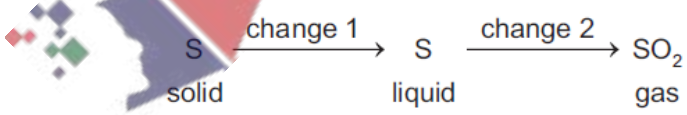
B gas at room temperature

C liquid

D solid

15. March/2022/Paper_22/No.17

A sequence of changes involving sulfur is shown.



Which row describes the changes?

	change 1	change 2
A	chemical	chemical
B	chemical	physical
C	physical	chemical
D	physical	physical

16. March/2022/Paper_32/No.1

Which gas has the fastest rate of diffusion?

A H_2 **B** CH_4 **C** CO_2 **D** SO_2

17. March/2022/Paper_32/No.2

In which state does 1 dm^3 of methane contain the most particles?

A gas at 100 °C

B gas at room temperature

C liquid

D solid