

States of matter – 2021 O Level

1. Nov/2021/Paper_11/No.7

The rate of diffusion of carbon dioxide and methane is investigated at two different temperatures, one high and one low.

Which row correctly shows the gas that diffuses faster and the temperature at which diffusion takes place most rapidly?

	gas	temperature
A	carbon dioxide	high
B	carbon dioxide	low
C	methane	high
D	methane	low

2. Nov/2021/Paper_12/No.3

Pure oxygen is needed by many industries.

How is pure oxygen obtained in large amounts for such uses?

- A** by decomposition of calcium carbonate
- B** by decomposition of hydrogen peroxide
- C** by filtration of liquid air
- D** by fractional distillation of liquid air

3. Nov/2021/Paper_12/No.4

An impure sample of compound X has a melting point of 120 °C.

X is purified and its melting point is measured again.

Which row is correct?

	method of purifying X	melting point of pure X / °C
A	crystallisation	115
B	distillation	115
C	crystallisation	125
D	distillation	125

4. Nov/2021/Paper_12/No.7

A sample of gas is released at a particular point in a laboratory.

A detecting device is placed ten metres from the point where the gas is released. This device detects and records the time when the concentration of the gas is ten molecules in every million molecules of air.

The experiment is carried out with two gases at different temperatures.

In which experiment was the time recorded by the detector **greatest**?

	gas	temperature of laboratory / °C
A	SF ₆	20
B	SF ₆	40
C	CO ₂	20
D	CO ₂	40

5. Jun/2021/Paper_11/No.2

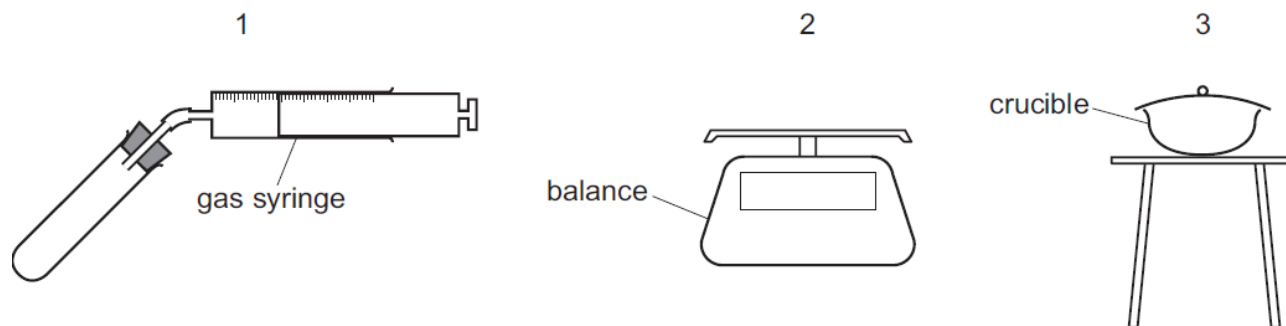
Which property of a liquid ester can be used to check its purity before use as a food flavouring?

- A boiling point
- B colour
- C smell
- D solubility in water

6. Jun/2021/Paper_12/No.2

The formula of magnesium oxide can be investigated by using the fact that when magnesium is heated it reacts with oxygen to form magnesium oxide.

Which apparatus is used for this investigation?



- A 1, 2 and 3
- B 1 and 2 only
- C 1 and 3 only
- D 2 and 3 only

7. Jun/2021/Paper_12/No.6

Which statement about states of matter is correct?

- A When a liquid freezes it becomes a solid and energy is released to the surroundings.
- B When a liquid reaches its boiling point it becomes a gas. This process is called evaporation.
- C When a solid changes directly to a gas the process is called condensation.
- D When a solid melts the particles get further apart and have less energy.

