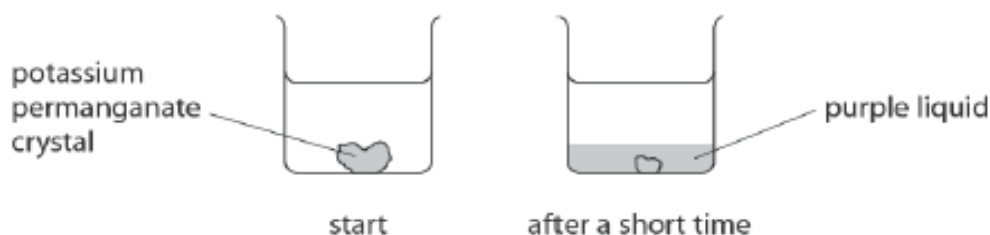


## ACTIVITY 3 – Assigning AOs to questions

- 1 Potassium permanganate is a purple solid that is soluble in water.

A crystal of potassium permanganate is placed in a beaker containing water.



- (a) After a short time, the crystal becomes smaller and the liquid at the bottom of the beaker becomes purple.

Which statement explains this observation?

(1)

- ☐ A the crystal condenses in the water
- ☐ B the crystal dissolves in the water
- ☐ C the crystal evaporates in the water
- ☐ D the crystal melts in the water

- (b) The beaker is left until there is no further change in the appearance of the liquid.

(i) Which statement describes the final appearance of the liquid?

(1)

- ☐ A all of the liquid is purple
- ☐ B none of the liquid is purple
- ☐ C only the bottom half of the liquid is purple
- ☐ D only the top half of the liquid is purple

(ii) Which process causes this change in appearance?

(1)

- ☐ A condensation
- ☐ B crystallisation
- ☐ C diffusion
- ☐ D evaporation

- 6 The reactions of metals with water and with dilute sulfuric acid can be used to determine the order of reactivity of the metals.

The table shows the reactions of four metals, W, X, Y and Z, with water and with dilute sulfuric acid.

Metal	Reaction with water	Reaction with dilute sulfuric acid
W	no reaction	no reaction
X	very slow reaction	reacts quickly
Y	no reaction	reacts slowly
Z	reacts quickly	reacts violently

- (a) What is the order of reactivity of these metals?

(1)

	most reactive	→			least reactive
<input type="checkbox"/> A	W	X	Y		Z
<input type="checkbox"/> B	Z	X	Y		W
<input type="checkbox"/> C	W	Y	X		Z
<input type="checkbox"/> D	Z	Y	X		W

3 A student does these two tests on a solution made from a white solid.

- flame test
- add acidified silver nitrate solution

The table shows his results.

Test	Result
flame test	red flame
add acidified silver nitrate solution	cream precipitate

(a) Give the formula of the ion that produces the red flame.

(1)

(b) Name the cream precipitate.

(1)

(c) Identify the white solid.

(1)

(d) The student uses a clean metal wire in the flame test.

(i) State why the wire should be clean when used in the flame test.

(1)

(ii) The table lists properties of some metals.

Add ticks (✓) to the table to show the two properties needed in a metal wire used in a flame test.

(2)

Property	
good conductor of electricity	
high density	
high melting point	
unreactive	

2 The table gives some information about the halogens, chlorine, bromine and iodine.

Halogen	Physical state at room temperature	Colour
chlorine	gas	pale green
bromine		red-brown
iodine	solid	

(a) Complete the table.

(2)

(b) Chlorine has two isotopes of mass numbers 35 and 37

The relative percentage of each isotope in a sample of chlorine is

chlorine-35    77.78%                  chlorine-37    22.22%

Calculate the relative atomic mass of this sample of chlorine.

Give your answer to one decimal place.

(3)

relative atomic mass = .....

(c) A student is given an aqueous solution of chlorine and an aqueous solution of potassium bromide.

Explain how he can use these two solutions to compare the reactivity of chlorine with the reactivity of bromine.

(4)