

25 Some halide ions are displaced from aqueous potassium halides by halogens.

In which mixtures are the halide ions displaced?

- 1 potassium bromide and chlorine
- 2 potassium bromide and iodine
- 3 potassium iodide and chlorine
- 4 potassium chloride and iodine

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

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24 Which row describes the colour and state of iodine at room temperature and pressure?

	colour	state
A	green	liquid
B	grey-black	solid
C	purple	solid
D	red-brown	liquid

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22 Which property decreases down Group VII of the Periodic Table, from chlorine to iodine?

- A** atomic number
- B** density
- C** reactivity
- D** melting point

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23 Tennessine (atomic number 117) is a manufactured element that is below astatine in Group VII of the Periodic Table.

What is the expected state of tennessine at room temperature and pressure?

- A** a diatomic gas
- B** a liquid
- C** a monatomic gas
- D** a solid

24 When chlorine is bubbled into aqueous sodium bromide, a displacement reaction occurs.

Which description of this reaction is correct?

- A** Chloride displaces bromide.
- B** Chlorine displaces bromine.
- C** Chloride displaces bromine.
- D** Chlorine displaces bromide.

26 Tennessine, Ts, is at the bottom of Group VII of the Periodic Table.

What are the predicted properties of tennessine at room temperature?

- A** a black solid, more dense than iodine
- B** a black solid, more reactive than iodine
- C** a colourless gas, less dense than chlorine
- D** a colourless gas, less reactive than chlorine

3 The halogens are a group of elements in the Periodic Table.

Chlorine is a member of this group.

(a) State the group number of the halogens.

..... [1]

(b) State how many halogens there are in this group.

..... [1]

(c) Suggest the identity of the halogen which:

(i) has the highest density

..... [1]

(ii) is the most reactive.

..... [1]

(d) State the name of the negative ions (anions) formed by halogens.

..... [1]

(e) State how many occupied electron shells there are in a bromine atom.

..... [1]

(f) Name the noble gas which has the same electronic configuration as a Br^- ion.

..... [1]

(g) Aqueous chlorine, Cl_2 , reacts with aqueous potassium iodide, KI.
One of the products formed is iodine, I_2 .

(i) Complete and balance the ionic equation for the reaction between Cl_2 and I^- ions.
State symbols are **not** required.



[2]

(ii) Explain why this reaction is defined as a redox reaction.

Give your answer in terms of electron transfer.

.....
..... [2]

(h) Give the colour and state of iodine at room temperature and pressure.

colour

state

[2]