

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.

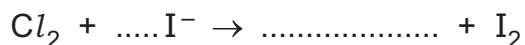
..... [1]

(f) Name the noble gas which has the same electronic configuration as a  $\text{Br}^-$  ion.

..... [1]

(g) Aqueous chlorine,  $\text{Cl}_2$ , reacts with aqueous potassium iodide, KI.  
One of the products formed is iodine,  $\text{I}_2$ .

(i) Complete and balance the ionic equation for the reaction between  $\text{Cl}_2$  and  $\text{I}^-$  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]