

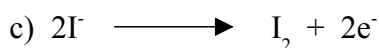
Chemguide – answers

ELECTROLYSING MOLTEN COMPOUNDS

1. a) Electrolysis is a chemical change produced when electricity is passed through a substance which is either molten or in solution.
b) An electrolyte is a compound which undergoes electrolysis
c) The anode is the positive electrode.
d) A cation is positive ion which is attracted to the negative cathode.

2. a) Iodine

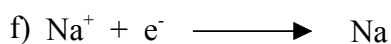
b) Anode (How do you know that? Because you know that iodine forms negative ions, and so will be attracted to the positive anode.)



If it is the way you have been taught, you could also write $2\text{I}^- - 2\text{e}^- \longrightarrow \text{I}_2$

d) Oxidation (loss of electrons)

e) Sodium metal is produced at the electrode, and because of the high temperature it immediately burns in the air above the melt (or possibly in the iodine vapour which is being produced at the other electrode).



g) For electrolysis to happen, the ions have to be free to move towards the electrodes. In the solid, they are held in a rigid lattice.

h) For each sodium ion that is discharged, an electron is taken off the cathode leaving a space. At the same time, discharge of the iodine is putting new electrons on to the anode. The power source can pump these new electrons around the circuit to fill up the spaces on the cathode – the flow of electrons is an electric current.