The Chemical Earth – Topic Test
Answers

Part 1

1. D
2. A
3. B
4. D
5. B
6. B
7. D
8. C
9. D
10. B
11. B
12. D
13. B
14. A

Part 2

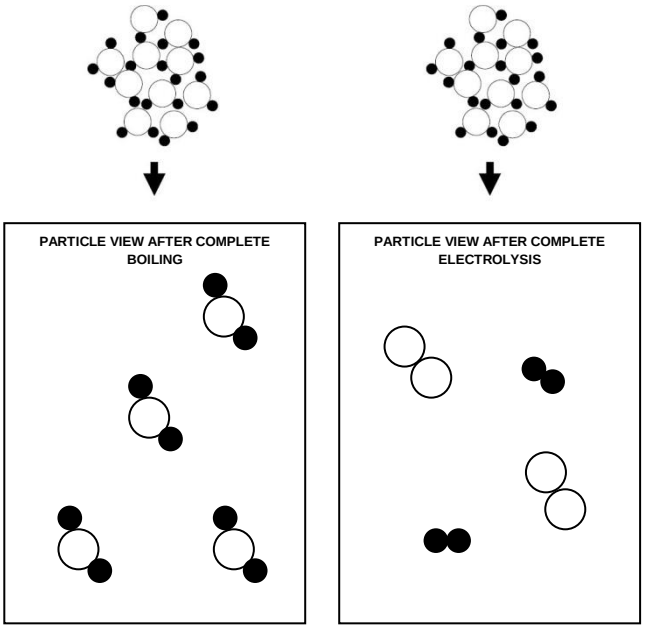
1.

Charge	1+
Mass Number	23
Atomic Number	11
Number of neutrons	12
Number of electrons	11
Number of protons	11
Electron configuration	2,8,1

2. **(a)** $CuCO_3(s) \rightarrow CuO(s) + CO_2(g)$
(b) $N_2(g) + 3H_2(g) \rightarrow 2NH_3(g)$
(c) $H_2O(l) \rightarrow 2H_2 + O_2(g)$

3. **(a)** Copper is a metallic substance. Metallic substances contain mobile electrons which are free to move about. When electricity is passed through copper, the electrons can move and pass the electric current through the substance.
(b) When the Potassium is in solid form, the ions are in fixed positions. This means that the ions cannot move and pass electric current. However, when this substance is changed to molten state the bonding is broken and the electrons are now free to move about. The ions are now mobile and can pass electric current.

4. (a)



(b) Boiling is a physical change – bonds between molecules (intermolecular) have been broken but water molecules exist both before and after, just in a different state. Electrolysis involves chemical decomposition of water – water molecules are broken down into hydrogen and oxygen molecules. The breaking of bonds between atoms require greater quantities of energy.

5. (a) Strontium Chloride (ionic)
(b) Phosphorus Tribromide (covalent molecular)
(c) Sulfur Tetrafloride (covalent molecular)
(d) Copper Oxide

6. Mixture of salt, sand and water (1 mark).

Method (3 marks):
1. Prepare mixture and determine mass.
2. Filtration to separate sand, dry filter paper and residue to determine mass.
3. Evaporation of water to remove salt and determine mass.
4. Calculations to determine mass of water.
5. Calculations to determine percentage composition.

Physical Properties (2 marks):
1. Sand is insoluble solid – separate by filtration.
2. Salt in soluble in water – separate by evaporation.