Quiz (Extraction of Metals)

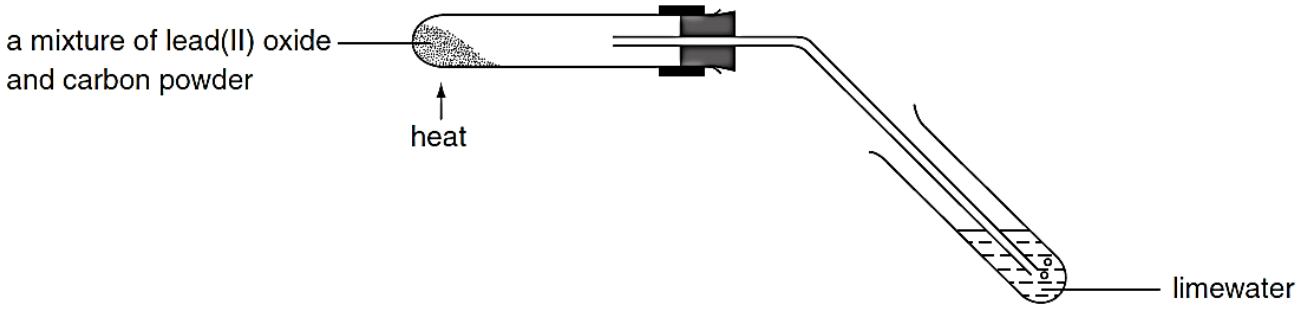
1. Metals are usually extracted from their ores before use. State the method of extraction for the following metals. Write the relevant word equation for each of the extraction.

   (a) Silver from argentite which consists of silver sulphide

   (b) Sodium from rock salt which consists of sodium chloride

   (c) Iron from haematite which consists of iron(III) oxide

2. A mixture of lead(II) oxide and carbon powder was strongly heated in a test tube as shown below. Grey beads formed in the test tube and gas bubbles evolved which turned limewater milky.



   (a) What are the grey beads formed?

   (b) What is the gas evolved in the reaction?

   (c) Write a word equation for the reaction between lead(II) oxide and carbon.

   (d) Would there be any reaction if lead(II) oxide was replaced by
   (i) copper(II) oxide?
   (ii) magnesium oxide?

   Write a word equation for any reaction involved. Explain briefly if there would be no reaction.

Suggested Answer

1. (a) Heating the metal ore alone.

   silver sulphide + oxygen $\xrightarrow{\Delta}$ silver + sulphur dioxide

   (b) Electrolysis of the molten ore

   sodium chloride $\xrightarrow{\text{electricity}}$ sodium + chlorine

   (c) Heating the metal ore with carbon / carbon reduction

   iron(III) oxide + carbon monoxide $\xrightarrow{\Delta}$ iron + carbon dioxide

2. (a) Lead metal

   (b) Carbon dioxide

   (c) lead(II) oxide + carbon $\xrightarrow{\Delta}$ lead + carbon dioxide

   (d) (i) Yes

   copper(II) oxide + carbon $\xrightarrow{\Delta}$ copper + carbon dioxide

   (ii) No

   This is because magnesium is a reactive metal.