

**Level 2 Question – Everyone should attempt this one**

Soluble salts are formed by reacting **metal oxides** with **acids**.

- (a) Give **one** other type of substance that can react with an acid to form a soluble salt.

(1)

- (b) Calcium nitrate contains the ions  $\text{Ca}^{2+}$  and  $\text{NO}_3^-$

Give the formula of calcium nitrate.

\_\_\_\_\_ (1)

- (c) Describe a method to make pure, dry crystals of magnesium sulfate from a metal oxide and a dilute acid.

[illegible]

(6)

**Level 1 Question – Have a go at this if level 2 is too hard.**

Ammonium nitrate and potassium chloride are both salts. They can be made by neutralisation reactions.

Choose substances from the box to complete the word equations for the formation of these two salts.

ammonia	hydrochloric acid	nitric acid
potassium nitrate	water	potassium hydroxide

ammonia + \_\_\_\_\_ → ammonium nitrate + water

\_\_\_\_\_ + hydrochloric acid → potassium chloride + \_\_\_\_\_

(Total 3 marks)

**Level 3 Question – Have a go at this one if you completed level 2 with confidence**

This question is about compounds.

- (a) The table gives information about the solubility of some compounds.

Soluble compounds
All potassium and sodium salts
All nitrates
Chlorides, bromides and iodides, except those of silver and lead

Use information from the table to answer these questions.

- (i) Name a soluble compound that contains silver ions.

\_\_\_\_\_ (1)

- (ii) Name a soluble compound that contains carbonate ions.

\_\_\_\_\_ (1)

- (b) Metal oxides react with acids to make salts.

What type of compound is a metal oxide?

\_\_\_\_\_ (1)

(c) Lead nitrate solution is produced by reacting lead oxide with nitric acid.

(i) State how solid lead nitrate can be obtained from lead nitrate solution.

---

---

(1)

(ii) Balance the equation for the reaction.



(1)

(iii) Give the total number of atoms in the formula  $\text{Pb}(\text{NO}_3)_2$

---

(1)

**You will need to use *Mass/Mr = Moles* for the following question!!**

(d) An oxide of lead that does **not** have the formula PbO contains 6.21 g of lead and 0.72 g of oxygen.

Calculate the empirical formula of this lead oxide.

Relative atomic masses ( $A_r$ ): O = 16; Pb = 207

You must show your working to gain full marks.

---

---

---

---

---

---

Empirical formula = \_\_\_\_\_

(4)

(Total 10 marks)

