

AQA - Quantitative Chemistry – GCSE 2022 CS Chemistry

1. June/2022/Paper_8464/C/1H/No.6

0 6

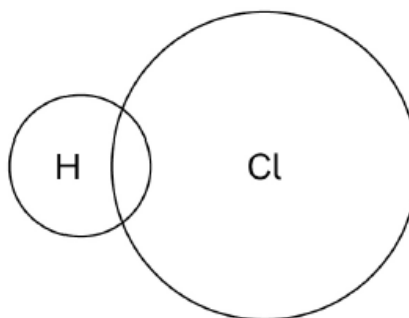
This question is about hydrogen chloride and hydrochloric acid.

0 6 . 1

Complete the dot and cross diagram to represent the bonding in hydrogen chloride on **Figure 7**.

Use dots (o) and crosses (x) to represent electrons.

You should show only the electrons in the outer shells.

[2 marks]**Figure 7**

0 6 . 2

Hydrogen chloride dissolves in water to produce hydrochloric acid.

Hydrochloric acid is a strong acid.

What is meant by the term strong acid?

[1 mark]

0 6 . 3

Describe how magnesium can be used to distinguish between a strong acid and a weak acid of the same concentration.

[2 marks]

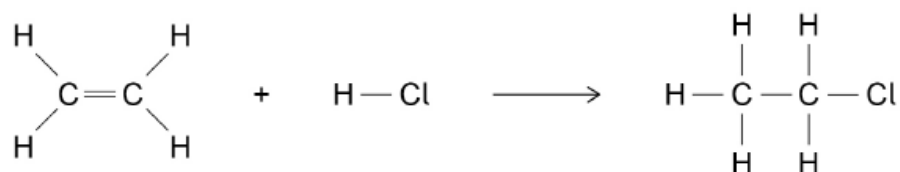
0 6 . 4 The concentration of hydrochloric acid is increased by a factor of 100

What is the change in pH?

[2 marks]

0 6 . 5 Ethene and hydrogen chloride react to produce chloroethane.

The displayed formulae equation for the reaction is:



The reaction is exothermic.

In the reaction the energy released forming new bonds is 56 kJ/mol greater than the energy needed to break existing bonds.

Table 1 shows some bond energies.

Table 1

Bond	H-C	C=C	H-Cl	C-C	C-Cl
Bond energy in kJ/mol	413	X	431	346	339

Calculate the bond energy X.

[4 marks]

X = _____ kJ/mol