Bonding – Exam questions
The diagram shows part of a crystal of sodium chloride. Name the type of bonding in sodium chloride. Describe this type of bonding.
Ionic bonding involves an attraction between positive and negative _____________.

Covalent bonding involves the sharing of pairs of _________________.

Protons
Ions
Electrons
Neutrons
The diagram shows the way the atoms bond together in a molecule of water.

What is a molecule?
Each hydrogen atom shares two electrons with the oxygen atom.

What name is given to the type of bonding that involves the sharing of pairs of electrons?

In the space below, draw a diagram of a methane molecule, CH4, showing the bonding between its atoms.
Describe a second type of chemical bonding and name a compound which has this type of bonding.

Bonding that involves the sharing of electron pairs is called ____________________.
Water molecules are very tiny, one teaspoon of water contains approximately $2 \times 10^{23}$ molecules.

Name the type of bonding in the water molecule.

Describe this type of bond.

Name one other compound with this type of bonding.
The diagram shows sodium ions (+) and chloride ions (-) in part of a crystal of table salt, sodium chloride.

- How are sodium ions and chloride ions formed from their atoms?

- What force holds the ions together in sodium chloride?

- Name one other compound that is composed of ions.
What **name** is given to the bond that involves an **attraction between positive and negative ions**?
What is an ionic bond?

Some atoms join together by sharing pairs of electrons. This is called covalent bonding.

Draw a diagram showing the covalent bonding in a molecule of water.
A pupil investigated the ability of covalent and ionic substances to conduct electricity.

Four substances were selected. One was a liquid. The other three substances were solids and these were dissolved in pure water before testing.

<table>
<thead>
<tr>
<th>Liquid type</th>
<th>Cooking oil</th>
<th>Table salt</th>
<th>Table sugar</th>
<th>Copper sulphate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid A</td>
<td>A</td>
<td>B</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>Liquid B</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>
When the liquids were tested the bulb did not glow in some cases (Liquid type A) and the bulb glowed in other cases (Liquid type B).
Name the **ionic substances** in the table. Give a **reason** for your answer.

**Three** of the substances tested are **solid at room temperature**. Why were these **substances dissolved in water** before the investigation?
The diagram shows a molecule of C60. It has 60 carbon atoms covalently bonded together.

This molecule is nick-named the ‘Bucky Ball’.

Explain the underlined term.
Neutrons and ____1____ are located in the nucleus of atoms.

The ____2____ move around outside the nucleus of atoms.

The ____3____ have no electric charge.

In ____4____ bonding pairs of electrons are shared.

In ____5____ bonding positive ions are attracted to negative ions.
<table>
<thead>
<tr>
<th>COVALENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELECTRONS</td>
</tr>
<tr>
<td>IONIC</td>
</tr>
<tr>
<td>NEUTRONS</td>
</tr>
<tr>
<td>PROTONS</td>
</tr>
</tbody>
</table>
The bond in a molecule of hydrogen gas is formed by a shared pair of electrons.

**Name** the type of bond found in hydrogen gas.

The bonds in sodium chloride are formed by sodium atoms **losing electrons** and chlorine atoms **gaining electrons**.

**Name** the type of bond found in a sodium chloride crystal.