

Atomic Structure and Chemical Bonding

Chapter 4: Atomic Structure and Chemical Bonding · Topic 1

Key Concept

Ionic bonding involves the transfer of electrons from one atom to another, forming oppositely charged ions that attract each other, like in NaCl.

Covalent bonding involves atoms sharing electrons to achieve a stable configuration, like in H₂O, where oxygen shares electrons with two hydrogen atoms.

Atoms bond to achieve a stable electron configuration, often resembling the nearest noble gas's electron arrangement (octet rule).

Understanding bonding types helps explain compound properties, like why ionic compounds often have high melting points, and covalent compounds vary more.

Quick Revision Notes

- Ionic bonding transfers electrons between atoms.
- This forms charged ions that attract each other.
- NaCl is an example of ionic bonding.
- Covalent bonding shares electrons between atoms.
- H₂O is an example of covalent bonding.
- Atoms bond to achieve stable configurations.
- This often follows the octet rule.
- Bonding type explains compound properties like melting point.

Practice Questions

- 1 Discuss ionic bonding using NaCl as an example.
- 2 Discuss covalent bonding using H₂O as an example.
- 3 Explain why atoms bond together.
- 4 Research the octet rule.
- 5 Discuss a property difference between ionic and covalent compounds.
- 6 Draw a simple diagram showing electron transfer or sharing.