

Bonding Assignment 2

1. Given a sample of a covalent molecular substance and a covalent network substance, explain why you could easily tell which is which. /3
 2. Consider the following substances: water, nitrogen gas, calcium, glass (SiO₂ network), salt (NaCl)
 - a) State which of these substances would conduct electricity as a solid. /1
 - b) State which of these substances would conduct electricity as a liquid. /2
 3.
 - a) State what is meant by a “polar bond” and state why it occurs. /2
 - b) Explain why CF₄ is a non-polar molecule even though it has polar bonds. /2
 - c) Draw H₂S and H₂O and hence explain which would exhibit stronger intermolecular forces. /3
 4. State whether hydrogen bonding is a primary or secondary interaction, and state a reason why. /2
 5. For the following molecules,
 - Draw an electron dot diagram
 - Draw the bonding and shape
 - Show any bond and molecular dipoles
 - Name the shape
 - For a) to d), name the kind of secondary interaction that occurs between its molecules
 - a) Nitrogen gas /2
 - b) Nitrogen dioxide /3
 - c) Sulfur trioxide /3
 - d) CCl₂F₂ /3
 - e) NH₄⁺ /3
 - f) PO₄³⁻ /3
 6. Describe the three types of primary bonding, using a diagram for each. /6
- TOTAL /38