

Chem 1 Reading Guide 15.10 – 15.14

Answer the following questions on a separate paper. Use complete sentences and give complete explanations.

1. Define the term **polar bond** and draw a picture of an example of a polar bond which shows the distribution of charges.
2. Explain how you can use electronegativities to determine whether or not a bond is polar.
3. Do **practice problems** 24 and 25 on page 419.
4. Describe a **polar molecule**. Draw a picture of a polar molecule showing the distribution of charges on the molecule.
5. Explain why an HCl molecule is polar, while a CO₂ molecule is non polar, even though a C–O bond is more polar than an H–Cl bond.
6. Do **practice problem** #27 on page 420.
7. Compare and contrast the 2 Van Der Waal's forces.
8. Explain why hydrogen bonds are stronger than ordinary dipole – dipole interactions.
9. Do **concept practice** problems #30 and 31 on page 423.
10. Based on your observations from the liquid nitrogen demonstration and your understanding of polar and non polar molecules, do you think that liquid N₂ has strong or weak intermolecular attractions? Give evidence to support your answer.
11. Explain why it is much more difficult to cut a diamond than break a salt crystal.
12. Why do network solids have extremely high melting points?
13. Answer questions 34 and 35 on page 426.
14. What are **nanostructured materials**? What advantages do they have over conventional materials?