Unit 6 Chemical Bonding Test Review Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Chem 332 – O’Dette Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_

1. Fill out the following chart of the properties of the different types of bonds.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Property | Ionic | Polar Covalent | Nonpolar Covalent | Metallic |
| What type of elements are in the chemical formula? (metal or nonmetal) |  |  |  |  |
| How are valence electrons used in the bond? (transferred, shared equally, or shared unequally) |  |  |  |  |
| Melting Point?  (Low, Medium, High) |  |  |  |  |
| Conductor as a Solid?  (yes or no) |  |  |  |  |
| Soluble in water?  (yes or no) |  |  |  |  |
| Soluble in hexane?  (yes or no) |  |  |  |  |
| Conductor in solution? (yes or no) |  |  |  |  |

1. What are polyatomic ions? Give three examples.
2. Draw the electron-dot structures for the following:
   1. CI4 d. SO42-
   2. NH3 e. SiO2
   3. C2H2 f. SBr2
3. Write the resonance electron-dot structures for TeO2.
4. Explain in your own words what electronegativity is.
5. Order the following elements in order of increasing electronegativity.
   1. Li, F, B, O
   2. Cl, Al, P, Mg
   3. Ba, Ca, Be, Sr
6. Use the electronegativities in your polarity packet to classify the following bonds as nonpolar covalent(NPC), polar covalent(PC), or ionic(I).
   1. Mg – Cl \_\_\_\_\_\_\_\_ d. I – I \_\_\_\_\_\_\_\_\_
   2. C – S \_\_\_\_\_\_\_\_ e. Cs – P \_\_\_\_\_\_\_\_\_
   3. H – C \_\_\_\_\_\_\_\_ f. O – H \_\_\_\_\_\_\_\_\_
7. Write whether each of the following molecules are polar or nonpolar.
   1. H2O
   2. CH3Cl
   3. BBr3
8. Explain the rule of “like dissolves like”.