PAL Worksheet – Chem 6A

Lewis Dot Structures and Covalent Compounds

I. LDS and Covalent Bonds

1. Draw the electron dot structure/LDS for the following atoms.

   a) hydrogen

   b) calcium

   c) carbon

   d) nitrogen

   e) oxygen

   f) chlorine

   g) argon

2. What type of element will form covalent bonds? (circle one) **metals** **non-metals**

3. What is the octet rule?

4. Of the atoms in #1 above, which two will *not* make covalent bonds? **Why not**? (Hint: consider your answers from #2 and #3.)

5. a. If the chemical formula of a substance is provided, how do you know if the substance is a covalent compound?

   b. The compound N_4S_2 can be classified as what type of compound? **Why**?

II. Naming and identifying binary compounds

1. a. The names of covalent compounds include Greek prefixes to indicate the ratio of the atoms that make up that compound. Fill in the blanks in the table below to reference which number each Greek prefix corresponds with.

number	Greek prefix		number	Greek prefix
1	mono-		6	
2				hepta
3			8	
	tetra		9	
5			10	

b. Based on the compound name, diphosphorus heptachloride, how many of each atom are required to make up one molecule of this substance?

phosphorus atoms: _____ chlorine atoms: _____

c. Write the chemical formula of diphosphorus heptachloride: _____

2. Write the chemical formula based on the name provided.

a. trinitrogen hexoxide _____

b. sulfur pentafluoride _____

c. tetraphosphorus nonachloride _____

d. silicon dioxide _____

3. Write the chemical name based on the provided formula.

CCl_4 _____

S_3Br_2 _____

N_6I_2 _____

P_2O_5 _____

III. LDS of Covalent Molecules: Draw the Lewis Structures for the following.

a) SO_3

b) NCl_3

c) NO_2^-

d) $CHCl_3$

e) CH_2S

f) CN^-

g) OCl2

h) H_2S

i) PF_3