Name
Date **Period**

Grade:

Lab 15
COVALENT MOLECULES

PRE LAB OUESTIONS - Refer to textbook

1. Define: electronegativity
   Nonpolar covalent bond
   Nonpolar molecule
   polar covalent bond
   polar molecule
   dipole
2. How do you use electronegativity values to determine whether a bond is ionic or covalent?
3. What is the significance of the value 1.7?
4. What type of bond exists when the electronegativity difference is *exactly* 1.7?
5. Name an exception to the 1.7 rule.
6. Will substances that contain only nonpolar covalent bonds ever form polar molecules? Explain.

DATA TABLE

FORMULA	ELECTRON DOT STRUCTURE	ELECTRO-NEGATIVITY DIFFERENCE	BOND TYPE (POLAR OR NONPOLAR)	SHAPE	KIND OF MOLECULE (POLAR OR NONPOLAR)
H_2					
Cl_2					
O_2					
N_2					
HCl					
BrCl					
HBr					
H_2O					
CO_2					
NH_3					
H_2S					
CH_4					
$CCl_\$$					
CH_3Cl					

NAME: _____ PERIOD: _____

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EXPERIMENT 15
COVALENT MOLECULES

CONCLUSION QUESTIONS

1. Calculate the electronegativity difference for the following bonds;

a. Li-H	d. B-Cl	g. Fr-F
b. H-I	e. H-F	h. Ca-C
c. P-O	f. Ca-O	i. Pb-O

2. Water and carbon dioxide are both triatomic molecules. Why is water polar and Carbon dioxide nonpolar?

3. Classify each of the following as ionic compounds, polar covalent molecule, or nonpolar covalent molecule:

a. Br_2	e. CO_2
b. $MgCl_2$	f. H_2O
a. CCl_4	g. N_2
d. HI	h. $BaBr_2$

4. Why is nitrogen such a stable element? When it forms compounds are they usually stable or unstable?

5. In bromine chloride (BrCl) which atom is slightly negatively charged? Why?

Discussion