Name _____ Date _____ Period _____

WEEK 22 AGENDA: Unit 5 (Covalent Compounds) course website: kachemistry.weebly.com

Date	Topic	Homework	
		CB	PA
M – Feb 9	Electronegativity and Bond Types	1a-f	1all
T – Feb 10	Notes: Intermolecular Forces	2-6	2-6
W – Feb 11	Lab: Intermolecular Forces Day 1	7-11	7-11
Th – Feb 12	Lab: Intermolecular Forces Day 2	Start lab write up	Start lab write up
F – Feb 13	Intermolecular Forces Lab Write-Up Day	complete lab write up	complete lab write up

Only answers written in your notebook will be graded!

1) Use the molecular geometry sheet (pg. 117 in your NB) to aid you in filling in the table below:

Formula	Lewis Dot Diagram	Bonds	Lone Pairs	Polarity (Polar or Nonpolar?)	Geometry
a) CF_4					
b) OF_2					
c) HCN					
d) NO_2^{1-}					
e) CH_4					
f) NH_3					
g) CO					
h) PO_4^{3-}					
i) H_3O^+					

Electronegativity values

H 2.1																	He
Li 1.0	Be 1.5											B 2.0	C 2.5	N 3.0	O 3.5	F 4.0	Ne
Na 0.9	Mg 1.2											Al 1.5	Si 1.8	P 2.1	S 2.5	Cl 3.0	Ar
K 0.8	Ca 1.0	Sc 1.3	Ti 1.5	V 1.6	Cr 1.6	Mn 1.5	Fe 1.8	Co 1.8	Ni 1.8	Cu 1.9	Zn 1.6	Ga 1.6	Ge 1.8	As 2.0	Se 2.4	Br 2.8	Kr 3.0
Rb 0.8	Sr 1.0	Y 1.2	Zr 1.4	Nb 1.6	Mo 1.8	Tc 1.9	Ru 2.2	Rh 2.2	Pd 2.2	Ag 1.9	Cd 1.7	In 1.7	Sn 1.8	Sb 1.9	Te 2.1	I 2.5	Xe 2.6
Cs 0.7	Ba 0.9	La 1.1	Hf 1.3	Ta 1.5	W 1.7	Re 1.9	Os 2.2	Ir 2.2	Pt 2.2	Au 2.4	Hg 1.9	Ti 1.8	Pb 1.8	Bi 1.9	Po 2.0	At 2.2	Rn 2.4
Fr 0.7	Ra 0.7	Ac 1.1	Unq	Unp	Unh	Uns	Uno	Une									

Ce 1.1	Pr 1.1	Nd 1.1	Pm 1.1	Sm 1.1	Eu 1.1	Gd 1.1	Tb 1.1	Dy 1.1	Ho 1.1	Er 1.1	Tm 1.1	Yb 1.1	Lu 1.2
Th 1.3	Pa 1.5	U 1.7	Np 1.3	Pu 1.3	Am 1.3	Cm 1.3	Bk 1.3	Cf 1.3	Es 1.3	Fm 1.3	Md 1.3	No 1.3	Lr

Bond Type	**Difference in electronegativities**
Nonpolar	0.0 – 0.4
Polar	0.5 – 1.9
Ionic	> 1.5

Use the electronegativities in the periodic table above for the following questions:

3) In your own words, what is electronegativity?
4) Are electrons shared equally or unequally in a nonpolar bond? A polar bond?
5) Describe the following bonds in the following compounds as ionic, polar, or nonpolar. Then determine what type of intermolecular forces would present between each compound if there were many of the same molecules present. For example, H-Br is polar covalent so if there were many H-Br there would be dipole-dipole forces present. ***If the covalent compound is polar:** denote the partially positive side with δ+ and the partially negative side with δ-.
   a. HBr
   b. NaBr
   c. Br_2
   d. H_2O
   e. HI
   f. CaO
   g. CO
   h. H_2
   i. MgS
6) The bonds between the following pairs of elements are covalent. Arrange them according to polarity, **listing the most polar bond first.**
   a. Cl—Cl
   b. Cl—C
   c. Cl—F
   d. Cl—O
   e. Cl—H
7) What is a hydrogen bond?
8) What causes dispersion forces?
9) Rank the following **inter**molecular forces from weakest to strongest: dipole-dipole, ionic forces, dispersion forces, hydrogen bonds.
10) Rank the following **intra**molecular forces from weakest to strongest: ionic bonds, polar covalent bonds, nonpolar covalent bonds.
11) Fill in the following table:

Compound	**Ionic or Covalent**	**Name**
Li_2O		
		Dinitrogen tetroxide
$FeCO_3$		
		Cobalt (II) sulfide
PH_3		
		Magnesium Bromide
P_4S_3		