Name: _____ Period: _____

Unit 6 Covalent Molecules- Funsheets Part 1

Part A: Name the following molecules:

1) CO_2 _____
2) CCl_4 _____
3) PCl_5 _____
4) SeF_6 _____
5) CI_4 _____
6) I_2P_8 _____
7) BrCl _____
8) I_2O_5 _____
9) Se_3P_6 _____
10) As_2O_5 _____
11) SO_3 _____
12) ICl_3 _____
13) PBr_5 _____
14) P_2O_3 _____
15) CSe_2 _____
16) As_2O_2 _____
17) NCl_3 _____
18) CI_4 _____
19) As_2S_3 _____
20) N_2O_4 _____
21) CS_2 _____
22) H_2O _____
23) Se_2O_5 _____
24) F_2O _____
25) CO _____
26) NO _____
27) PO_4 _____
28) P_5O_7 _____
29) CBr_4 _____
30) SO_2 _____

Name: _____ Period: _____

Part B: Write the formula for the following binary molecular compounds:

1) carbon tetrabromide _____
2) silicon dioxide _____
3) tetraphosphorus decoxide _____
4) diarsenic trisulfide _____
5) sulfur trioxide _____
6) diphosphorus pentoxide _____
7) dinitrogen trioxide _____
8) carbon monoxide _____
9) Tetracarbon Octahyride _____
10) dihydrogen monoxide _____
11) silicon tetrafluoride _____
12) tetraphosphorus triselenide_____
13) disilicon hexabromide _____
14) tetrasulfur dinitride _____
15) diboron tetrabromide _____
16) iodine trioxide _____
17) diselenium diiodide _____
18) oxygen _____
19) nitrogen _____
20) Pentachlorine Heptaoxide _____
21) Dihydrogen monoxide _____
22) Pentaphosphorous monochloride _____
23) Dicarbon Octahydride _____
24) Chlorine gas _____
25) hydrogen _____

Name: _____ Period: _____

Part C: Lewis Structures

Molecule	Total Valence Electrons	Lewis Structure	Do all atoms have an octet or duet?	# of Single Bonds, # of Double Bonds# of Triple Bonds	# of unshared pairs of electrons on the Central atom
H_2O					
N_2					
NH_3					
CH_4					
CF_4					
CH_3Cl					
SO_3					

Name: _____ Period: _____

Unit 6 Covalent Molecules- Funsheets Part 2

Part D: Determine the electronegativity difference and determine what type of bond (polar or nonpolar) exists between the following pairs of atoms:

1) Polar bonds have an electronegativity difference _____
2) Nonpolar bonds have an electronegativity difference _____

Electronegativity values of the elements (Pauling scale)

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															

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

Compounds	Electronegativity Difference	Polar or Nonpolar
HI		
SeS_2		
SeF_4		
SO_2		
HBr		
CH_4		
H_2S		
HCl		
BrI		
$SiCl_4$		
ClO3		
SCl_2		
ICl		
BrCl		
PO_3		

3) Which of the substance(s) above is the most polar?_____
4) Which of the substance(s) above is the least polar?_____

Name: _____ Period: _____

Part E: Intermolecular Forces

Answer the following questions about intermolecular forces

1) What is the difference between intramolecular forces and intermolecular forces?

2) List intramolecular forces in order from strongest to weakest.

3) List intermolecular forces in order from strongest to weakest.

4) Describe dipole-dipole.

5) Describe hydrogen bonding.

6) Describe London dispersion forces.

7) Use the table below to answer the following questions:

Substance	Boiling Pt	Melting Pt	Vapor Pressure
Q	High	High	Low
R	High	Low	Low
S	Low	Low	High

a. Which substance is *ionic* due to the strength of its intramolecular forces?

b. Which substance is *covalent* due to the strength of its intramolecular forces?

8) Use the table below to answer the following questions:

Substance	Boiling Pt	Melting Pt	Vapor Pressure
L	High	High	Low
M	High	Low	Low
N	Low	Low	High

a. Which substance has the *strongest* intermolecular forces?

b. Which substance has the *weakest* intermolecular forces?