



Name: _____
**CHEMICAL BONDING
HONORS CHEMISTRY
TEXTBOOK PG 225-287**

1. Define the terms *cation*, *anion* and *ionic bond*.

2. Complete the following table.

Element	Symbol for the characteristic cation or anion	Electron Configuration for the cation or anion
Na	Na^+	
K	K^+	
Rb	Rb^+	
Mg	Mg^{2+}	
Ca	Ca^{2+}	
Ba	Ba^{2+}	
O	O^{2-}	
F	F^-	
Cl	Cl^-	
Br	Br^-	
I	I^-	
Fe	Fe^{2+} Fe^{3+}	
Co	Co^{2+} Co^{3+}	

3. Describe some of the characteristic physical properties of ionic compounds.

8. Explain the difference between the models for polar bonds and nonpolar bonds. Cite at least one example of each type of bond in your explanation. How do electronegativity differences between bound atoms correlate with bond polarity?

9. Draw the Lewis structures for

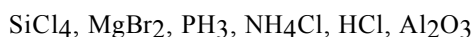


10. Describe the difference among the models for single, double and triple bonds. (Note: Include such properties as bond length and bond energy.)

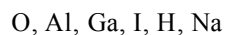
11. Write the Lewis structure for



12. Predict whether the following compounds are ionic or covalent.



13. Arrange the following elements from smallest to largest electronegativity.

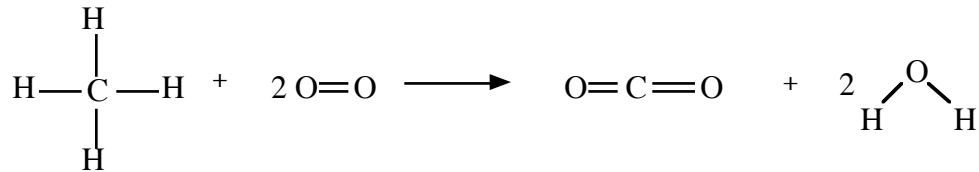


Given the information in the table below;

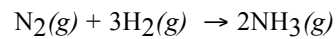
	Bond Length (nm)	Bond Energy (kJ/mol)
H-H	0.074	435
H-Cl	0.127	431
Cl-Cl	0.198	243
H-C	0.109	414
C-Cl	0.177	328
C-C	0.154	331
C=C	0.134	590
C≡C	0.120	812
C-O	0.143	326
C=O	0.120	803
C≡O	0.113	1075
N-N	0.145	159
N=N	0.125	473
N≡N	0.110	941

14. Write the mathematical equation for estimating enthalpies of reaction from bond energies.

15. Using bond energies, calculate ΔH° for the reaction (See your text or other reference book for a more complete table of bond energies needed to solve the following problems.)



16. Using bond energies, calculate ΔH° for the reaction



17. Using bond energies, calculate ΔH° for the reaction

