

Homework #4

September 29

tested on Test 1, October 7

from Averill -- Chapter 8: 88,90,95,106,112; Chapter 9: 65,66,69,75,76,81,82,83,84,88,89

Also, the following questions:

1. Estimate the ionic radius of Cs^+ . The lattice energy of CsCl is 633 kJ/mol. For CsCl the Madelung constant, M , is 1.763, and the Born exponent, n , is 10.7. The ionic radius of Cl^- is known to be 1.81 Å.
- 2.(a) CFCs have been implicated in ozone depletion. Show that when Freon 12 (CCl_2F_2) is exposed to ultraviolet radiation, the compound decomposes to produce chlorine.

(b) Draw the Lewis structure of Freon 12 and indicate the polarities of each bond within this compound.

(c) Determine the percent ionic character of the C–Cl and C–F bonds.

DATA:

Average Bond Energies (kJ/mol)

<u>Single Bonds</u>		<u>Multiple Bonds</u>	
H–H	435	C=C	610
F–F	155	C≡C	836
Cl–Cl	242		
C–C	347		