Notes 02/06

Wednesday, February 06, 2008 10:15 AM

Na(s) +
$$\frac{1}{2}$$
 Cl₂(s) $\frac{\text{sHf}}{\text{NaCl}(s)}$ NaCl(s)

vaporization | bond 120
energy | value | energy |

Na(g) | Cl(s) | M

ionization | 494 | electron -349
energy | affinity | $\mu = -788 \text{ kJ/mol}$

Na(s) + Cl(g)

Since we treat ions as charges:

Coulomb Law

$$E = kQ_1Q_2$$

$$d_{r_4r_2}$$

$$Na^{\dagger} C1^{-}$$

$$Q_1 Q_2$$

$$8.92 \times 10^9 \text{J/mol} C$$

$$Q_1 = \pm 1.602 \times 10^{-19} \text{C}$$

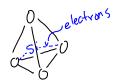
- Which has higher lattice energy?
 - o NaCl or Nal
 - NaCl or NaF
 - NaCl or <u>III</u>
 - o CaCl₂ or NaCl
 - Ca₃N, NaCl, CaO, CaCl₂
 Ca₃N₂>CaO>CaCl₂>NaCl

Material on Midterm will cover up until this point:

- o MO diagrams
- o Lattice Energy
- Drawing Structures
- Symmetry/point groups
- Five Regular Polyhedra (platonic solids)
 - o Be able to draw and understand their properties.
 - 1. Tetrahedron
 - 4 equilateral triangles (faces)
 - 4 vertices
 - 6 edges
 - Example: P₄



■ Example: SO₄²⁻, PO₄³⁻, SiO₄⁴⁻



- 2. Cube
 - 6 square faces
 - 8 vertices
 - 12 edges
 - Examples:
 - □ Si₈O₂₀⁸⁻

Si + Si + Si - 0

- □ Fe₄S₄Cl₄ S Fe Cl Cl Fe IS I Cl Fe I S S Fe
- □ C₈H₈

> Fe

/sts>fe

c1-Fe fc