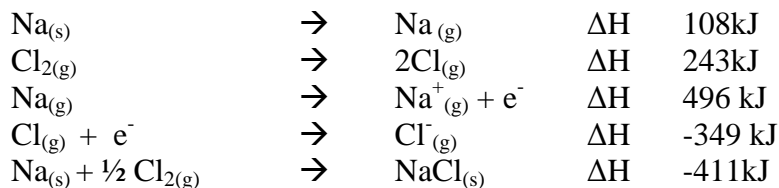


Lattice Energy

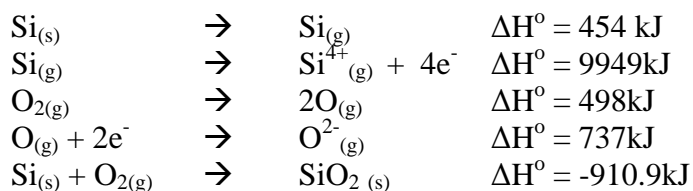
Name _____
Period _____

A) Draw the energy diagram (Lattice energy like that one on page 280) of $\text{NaCl}_{(s)}$ and label each step (electron affinity, ionization energy, heat of formation, etc).



Calculate the lattice energy of $\text{NaCl}_{(s)}$ $\text{NaCl}_{(s)} \rightarrow \text{Na}^+ + \text{Cl}^-$ $\Delta H^\circ =$ _____

B) Draw the energy diagram (Lattice energy like that one on page 280) of $\text{SiO}_{2(s)}$ and label each step (electron affinity, ionization energy, heat of formation, etc).



Calculate the lattice energy of $\text{SiO}_{2(s)}$ $\text{SiO}_{2(s)} \rightarrow \text{Si}^{+4} + 2 \text{O}^{2-}$ $\Delta H^\circ =$ _____

C) Explain the trends in lattice energy

a) $\text{MgO} > \text{MgCl}_2$

b) $\text{NaCl} > \text{RbBr} > \text{CsBr}$

c) $\text{BaO} > \text{KF}$

D) Calculate the ΔH_f of MgCl_2 given (Draw the energy diagram to show your work):

Lattice energy of MgCl_2 = ΔH 2489kJ

1st ionization energy of Mg = ΔH 738kJ

2nd ionization energy of Mg = ΔH 1450 kJ

Electron Affinity of Cl = ΔH -349 kJ

Heat of vaporization of Mg = ΔH 127 kJ

Bond enthalpy of Cl_2 = ΔH 242kJ