

Unit 2 Free Response Questions

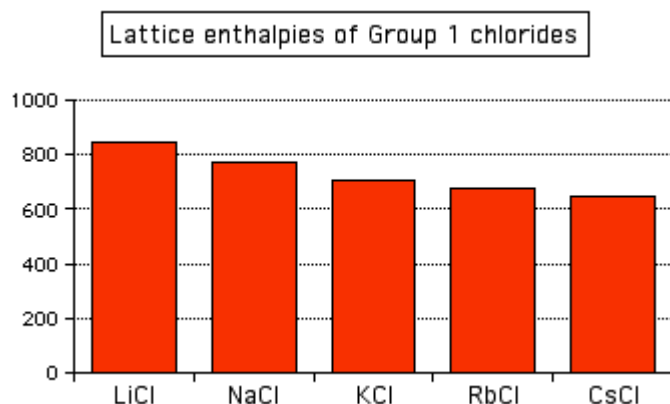
Your class will select three questions from the following set that you must answer. Your answer to each question is worth a maximum of ten points each. Points are earned in the following ways:

3 pts: English writing conventions – the student writes complete sentences with proper punctuation and grammar. The question is restated in the context of the answer.

4 pts: The answer addresses the question that was asked. Required examples, explanations and illustrations are provided, though they might not be correct.

3 pts: The answer is conceptually correct.

1. While writing complete sentences, identify each property below as more characteristic of a metal or a nonmetal.
 - a. a gas at room temperature
 - b. brittle
 - c. malleable
 - d. poor conductor of electric current
 - e. shiny
2. What happens to atomic radius as you move down a group (family) of elements on the periodic table? Explain why the property changes in the way that it does.
3. Write the electron configuration for the element potassium, K (atomic #19). Explain in terms of its electron configuration why this element is never found pure in nature.
4. In Greek, the word “halogen” literally means “salt maker”. Which is the MOST reactive of the halogens, and what is it about the structure of the halogens that allows them to react so well with metals to form ionic compounds (salts)?
5. Hydrogen is placed in Group 1 on our periodic table. Give the “Family” name of Group 1 and explain the reasoning for placing hydrogen in that group. Name at least two properties of the Group 1 elements that hydrogen DOES NOT possess.
6. “Lattice enthalpy” can be described as a measure of the forces of attraction between cations and anions in an ionic compound. It follows a periodic behavior. I



have included a graph of the lattice energy of Group 1 chlorides.

Write the formulas for magnesium oxide and barium oxide. Predict which of the two will have the higher lattice energy. Explain how you came to your conclusion.