

Name:

Date:

Period:

Seat #:

1. Predict the chemical formula of the ionic compound formed between the following pairs of elements:

- a. Al and F
- b. K and S
- c. Y and O
- d. Mg and N

2. Write the electron configuration for each of the following ions, and determine which ones possess noble-gas configurations:

- a.  $\text{Sr}^{2+}$
- b.  $\text{Ti}^{2+}$
- c.  $\text{Se}^{2-}$
- d.  $\text{Ni}^{2+}$
- e.  $\text{Br}^-$
- f.  $\text{Mn}^{3+}$

3. Explain the following trends in lattice energy:

- a.  $\text{MgO} > \text{CaS}$
- b.  $\text{LiF} > \text{CsBr}$
- c.  $\text{CaO} > \text{KF}$
- d.  $\text{CaI}_2 > \text{NaI}$
- e.  $\text{MgI}_2 > \text{CaI}_2$
- f.  $\text{Na}_2\text{O} > \text{K}_2\text{O}$

4. Arrange GaP BaS CaO and RbCl in order of increasing lattice energy. Explain why.

5. Arrange InAs, KBr, LiCl, SrSe, and ZnS in order of decreasing lattice energy. Explain why.

6. Rank the following elements below by the greatest electronegativity difference between bonds AND polarity of molecule?

CsF, NaCl, MgCl<sub>2</sub>, CH<sub>4</sub>

Electronegativity diff

Polarity

7. Use the following VENN diagram to explain the difference between covalent, ionic, and metallic bonds:

