

College Prep Chemistry of the Earth System

Assignment 4I

40 Points

Ionization and the Octet Rule

For the following, answer each question

1. Define the *octet rule*, and how cations and anions form from neutral atoms
2. Explain the relationship between ionization energy and electron affinity
3. What does the electronegativity relationships between atoms tell us about the interaction of two atoms?
4. What is the difference between an ionic, polar covalent and non-polar covalent bond?
5. Why does group 8A (18) not form ions?
6. For the following atoms determine the following:
 - The number of valence e^-
 - The number of electrons lost or gained and whether ion is an anion (-) or cation (+)
 - The neutral atom and ion dot structures

a. Li	d. P
b. Al	e. S
c. Si (+4, lose $4e^-$)	f. Br
7. Determine the electronegativity difference and bond type between the following atoms

a. Na and Br	Cl and Cl
b. H and F	Al and N
c. Ca and O	C and O