

## Chapter 6 Practice

cations always smaller ; anions always larger

### Periodic Trends

- Which particle has the largest radius from each pair:
  - K or  $K^+$
  - F or  $F^-$
  - O or  $O^{2-}$
  - Ca or  $Ca^{2+}$
- Indicate the element in each of the following pairs that has the greater first ionization energy.
 

a) fluorine or chlorine	d) carbon or nitrogen
b) sodium or oxygen	e) hydrogen or lithium
c) beryllium or magnesium	f) hydrogen or carbon
- Rank the following elements by increasing atomic radius: carbon, aluminum, oxygen, potassium. O, C, Al, K
- Rank the following elements by increasing electronegativity: sulfur, oxygen, neon, aluminum. Ne, Al, S, O
- Why does fluorine have a higher ionization energy than iodine? Top of family
- Why do elements in the same family generally have similar properties? Same electron configurations

### Periodic Table Identification

- The noble gases are elements in which the outermost s and p sublevels are completely filled.
- Group IA elements are called alkali metals.
- Group IIA elements are called alkaline earth metals.
- The nonmetallic elements of Group 7A (which includes Fluorine) are called the halogens.
- Which of the following elements are representative? P, Co, C, Li, Ag, Al

### For each description below, list an ELEMENT that fits the description.

- |  |   |
|--|---|
| 1. In the 3 <sup>rd</sup> period with 4 valence electrons. <u>Si</u>       | 13. Halogen from period 2. <u>F</u>                                   |
| 2. The representative element with the lowest ionization energy. <u>Fr</u> | 14. Metalloid from Group 4A. <u>Si or Ge</u>                          |
| 3. Alkali element in period 5. <u>Rb</u>                                   | 15. Non-metal from group 5A. <u>N or P</u>                            |
| 4. Neutral atom with 20 electrons. <u>Ca</u>                               | 16. Metal from group 4A. <u>Sn or Pb</u>                              |
| 5. -2 ion from period 3. <u>S</u>  | 17. +2 ion from period 2. <u>Be</u>                                   |
| 6. In the 2 <sup>nd</sup> period with 2 valence electrons. <u>Be</u>       | 18. Good conductor of electricity in period 3. <u>Al, Na, Mg</u>      |
| 8. Halogen in period 4. <u>Br</u>  | 19. +1 ion from period 4. <u>K</u>                                    |
| 9. +1 ion with largest radius. <u>Fr</u>                                   | 20. Neutral atom with 30 electrons. <u>Zn</u>                         |
| 10. Poor conductor of electricity in period 5. <u>I or Xe</u>              | 21. -1 ion with smallest radius. <u>F</u>                             |
| 11. Noble gas in period 2. <u>Ne</u>                                       | 22. Noble gas with largest radius. <u>Rn</u>                          |
| 12. Alkaline earth from period 5. <u>Sr</u>                                | 23. In period 3 with 5 valence electrons. <u>P</u>                    |
|  | 24. Transition metal in period 4 with 5 valence electrons. <u>4</u> ✓ |