Name Key

Chapter 6 Review - The Periodic Table

1. Who is famous for making the periodic table? How was his periodic table arranged? How is the periodic table arranged today?

Mendeleev created the table by arranging elements by mass. Today they are arranged by atomic number.

2. Identify each as a metal, nonmetal, or metalloid.

   a. semiconductor md
   b. hydrogen nm
   c. antimony (#51) md
   d. shiny m
   e. conducts electricity m
   f. poor conductor of heat nm
   g. berkelium (#97) m
   h. malleable m
   i. most common type of element m

3. On the periodic table, rows are called periods and columns are called groups or families.

4. What gets added to an atom every time you go down a column to the next row of the periodic table? How does this affect the attraction between the electrons and the nucleus?

An energy level is added. This increases shielding and decreases the attraction between electrons and the nucleus.

5. What gets added to an atom every time you go across a row to the next element on the periodic table? How does this affect the attraction between the electrons and the nucleus?

A proton is added. This increases nuclear charge and increases the attraction between electrons and the nucleus.

6. What are the periodic trends in atomic radius and what are the causes of these trends?

Increases going down because of shielding
Decreases going across because of nuclear charge

7. Arrange the following in order of increasing atomic radius: Tc(#43), Rb (#37), and Ag (#47)

Ag, Tc, Rb

8. Which of these has the shortest radius: He (#2), Rn (#86), or Kr (#36)?

He

9. Define:

   a. ion Charged particle

   b. cation positive ion

   c. anion negative ion

10. Which has a larger radius; Neutral Mg atom, or Mg^{2+} ion? Why?

Mg is larger than Mg^{2+} because Mg has more electron

11. Which of the following has a larger radius: Neutral O atom, or O^{2-} ion? Why?

O^{2-} is larger than O because O^{2-} has more electrons

12. Define ionization energy. What is the periodic trend for ionization energy? Explain the reasons why.

- energy required to remove an electron
- Increases Left to Right due to nuclear charge
- Decreases top to bottom due to shielding.

13. Which of these elements has the largest ionization energy: C (#6), N(#7), O(#8), F(#9)

F

14. Define electronegativity. What is the periodic trend for electronegativity? Explain the reasons why.

- Ability of an atom in a molecule to attract electrons to itself. (Noble gases have no electronegativity)
- Increases L to R due to nuclear charge - Decreases top to bottom b/c shielding

15. Which elements have no value for electronegativity?

Noble Gases

16. Which of these elements has the largest electronegativity: S(#16), Cl(#17), Se(#34), Br(#35)

Cl