Week 7: Assignment 7

To prepare for the upcoming examination, you are asked to answer the following questions:

1. A mixture of ions is poured into a solutions of hydrochloric acid. Which of the following is the correct reaction:
   - A. HCl + NaOH → NaCl + H₂O
   - B. HCl + KNO₃ → KCl + NO₃⁻
   - C. HCl + Na₂CO₃ → NaCl + H₂O + CO₂
   - D. HCl + AgNO₃ → AgCl + HNO₃

2. In the periodic table, the element located in the same period as magnesium is:
   - A. Carbon (C)
   - B. Sodium (Na)
   - C. Neon (Ne)
   - D. Nitrogen (N)

3. Which of the following statements is true regarding the properties of water:
   - A. Water is a non-polar molecule.
   - B. Water has a high boiling point due to hydrogen bonding.
   - C. Water is a monatomic molecule.
   - D. Water is a non-conductor of electricity.

4. The process of photosynthesis is essential for life on Earth because it:
   - A. Producers convert light energy into chemical energy.
   - B. Consumers obtain energy by feeding on producers.
   - C. Decomposers break down dead organic matter.
   - D. Excretion is the process by which waste products are removed from the body.

5. According to the periodic table, the element with the highest atomic number in the second period is:
   - A. Sodium (Na)
   - B. Magnesium (Mg)
   - C. Aluminum (Al)
   - D. Silicon (Si)

6. The following statements about acids and bases are true:
   - A. Acids release hydrogen ions (H⁺) in water.
   - B. Bases release hydroxide ions (OH⁻) in water.
   - C. All acids are corrosive.
   - D. All bases are caustic.

7. In the following reaction, what is the product of 2H₂O + CO₂ → CaCO₃ + O₂:
   - A. Carbon (C)
   - B. Calcium (Ca)
   - C. Oxygen (O₂)
   - D. Carbon Dioxide (CO₂)

8. The following are examples of chemical reactions:
   - A. The burning of wood in oxygen is a combustion reaction.
   - B. The dissociation of sodium chloride into its constituent elements is a decomposition reaction.
   - C. The formation of a precipitate in a titration experiment is a precipitation reaction.
   - D. The synthesis of water from hydrogen and oxygen gases is a synthesis reaction.

9. The following statements about the periodic table are true:
   - A. The elements are arranged in order of increasing atomic weight.
   - B. The elements are arranged in order of increasing atomic number.
   - C. The groups are organized by increasing atomic weight.
   - D. The periods are organized by increasing atomic number.

10. In the following reaction, what is the product of 2Na + Cl₂ → 2NaCl:
    - A. Sodium chloride (NaCl)
    - B. Sodium (Na)
    - C. Chlorine (Cl₂)
    - D. Hydrogen chloride (HCl)

11. The following statements about acids and bases are true:
    - A. All acids are corrosive.
    - B. All bases are caustic.
    - C. Acids release hydrogen ions (H⁺) in water.
    - D. Bases release hydroxide ions (OH⁻) in water.

12. The following statements about the properties of water are true:
    - A. Water is a non-polar molecule.
    - B. Water has a high boiling point due to hydrogen bonding.
    - C. Water is a monatomic molecule.
    - D. Water is a non-conductor of electricity.

13. In the following reaction, what is the product of 2H₂O + CO₂ → CaCO₃ + O₂:
    - A. Carbon (C)
    - B. Calcium (Ca)
    - C. Oxygen (O₂)
    - D. Carbon Dioxide (CO₂)

14. The following statements about the periodic table are true:
    - A. The elements are arranged in order of increasing atomic weight.
    - B. The elements are arranged in order of increasing atomic number.
    - C. The groups are organized by increasing atomic weight.
    - D. The periods are organized by increasing atomic number.

15. In the following reaction, what is the product of 2Na + Cl₂ → 2NaCl:
    - A. Sodium chloride (NaCl)
    - B. Sodium (Na)
    - C. Chlorine (Cl₂)
    - D. Hydrogen chloride (HCl)

16. The following statements about the properties of water are true:
    - A. Water is a non-polar molecule.
    - B. Water has a high boiling point due to hydrogen bonding.
    - C. Water is a monatomic molecule.
    - D. Water is a non-conductor of electricity.