Chapter 14 Review

1. Why do we use an equation for a chemical reaction that correctly preserves the number and type of atoms on both sides of the reaction?
2. What is the number in an equation that designates the number of molecules of a substance taking part in a chemical reaction called?
3. What is the substance formed in a chemical reaction called?
4. What are the starting substances in a chemical reaction called?
5. What is the solid product that comes out of solution in a chemical reaction called?
6. Define the following terms:
   1. (aq), (s), (l), (g)
   2. activation energy
   3. coefficient (in a chemical equation)
   4. subscript (in a chemical formula)
   5. precipitate
   6. endothermic/exothermic
   7. alpha radiation
   8. beta radiation
   9. gamma radiation
   10. half-life
   11. fusion/fission
7. How many kilo, deci, centi, and milli grams are in 1 gram?
8. Write the balanced equation for the following reaction: The fuel used in gas grills is called propane (C3H8). Propane reacts with oxygen gas (O2) found in the air to produce carbon dioxide (CO2) and water vapor (H2O).
9. Is the following reaction endothermic or exothermic?

NH4NO3*(s)* + H2O*(l)* + energy 🡪 NH4+1*(aq)* + NO3-1*(aq)* + H2O*(l)*

1. Name three examples of radiation that you might encounter in your environment?
2. What radioactive technique is used to determine the age of fossils?
3. Carbon-14 undergoes beta decay to become another element.
   1. What is the product of the radioactive decay?
   2. What is the new element?
4. Complete the table below for the indicated radioactive decay reactions.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Type of decay | Proton change | Neutron change | Atomic # change | Mass # change |
| Alpha decay |  |  |  |  |
| Beta decay |  |  |  |  |
| Gamma decay |  |  |  |  |

1. What does the Law of Conservation of Mass state?
2. In the chemical equation below:

C6H12O6 + 6 O2 🡪 6 CO2 + 6 H2O

* 1. What are the reactants?
  2. What are the products?
  3. What does the arrow mean?

1. Describe the five types of reactions.
2. Balance the following equations and indicate what type of reaction it is.
   1. \_\_\_\_\_H2 + \_\_\_\_\_O2 🡪 \_\_\_\_\_H2O
   2. \_\_\_\_\_Mg + \_\_\_\_\_O2 🡪 \_\_\_\_\_MgO
   3. \_\_\_\_\_Ca + \_\_\_\_\_H2O 🡪 \_\_\_\_\_Ca(OH)2 + \_\_\_\_\_H2
   4. \_\_\_\_\_Cu + \_\_\_\_\_HgNO3 🡪 \_\_\_\_\_Cu(NO3)2 + \_\_\_\_\_Hg
   5. \_\_\_\_\_C3H8 + \_\_\_\_\_O2 🡪 \_\_\_\_\_CO2 + \_\_\_\_\_H2O
   6. \_\_\_\_\_Al + \_\_\_\_\_F2 🡪 \_\_\_\_\_AlF3
   7. \_\_\_\_\_C6H12O6 + \_\_\_\_\_O2 🡪 \_\_\_\_\_CO2 + \_\_\_\_\_H2O
   8. \_\_\_\_\_Fe3O4 + \_\_\_\_\_H2 🡪 \_\_\_\_\_Fe + \_\_\_\_\_H2O
   9. \_\_\_\_\_Al2O3 + \_\_\_\_\_HCl 🡪 \_\_\_\_\_AlCl3 + \_\_\_\_\_H2O
   10. \_\_\_\_\_NH4OH + \_\_\_\_\_FeCl3 🡪 \_\_\_\_\_Fe(OH)3 + \_\_\_\_\_NH4Cl
   11. \_\_\_\_\_CaO + \_\_\_\_\_P2O5 🡪 \_\_\_\_\_Ca3(PO4)2