

1. **Chapter 11. Page 344**      *Chemical reactions. Writing equations, balancing equations.*

\* Study the concepts of: Chemical equation, skeleton equation, catalyst.

\* Answer: question 3 & 4 page 352; questions 5 & 6 page 353.

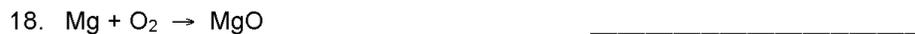
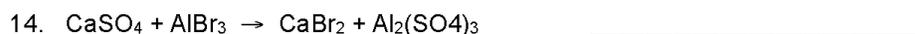
\* Answer questions: 9, a. b. 10, a. b. c. d. & 11 a. b. c. page 354.

Do Not Write on worksheet!

2. Write the equation for the chemical reaction that occurs when:

- Metallic sodium reacts with chlorine gas to produce sodium chloride
- Metallic calcium exposed to the air oxidizes.
- Hydrogen gas is burned in oxygen to produce water vapor.
- A solution of magnesium hydroxide reacts with hydrochloric acid to yield magnesium chloride in water.
- Solid Calcium carbonate reacts with sulfuric acid to produce calcium sulfate, water and release carbon dioxide.
- Spontaneous decomposition of liquid hydrogen peroxide into liquid water and oxygen (gas).

3. Balance the following chemical reactions.



### Questions p352

1. Balance the equation:  $\text{CO} + \text{Fe}_2\text{O}_3 \longrightarrow \text{Fe} + \text{CO}_2$
2. Write the balanced chemical equation for the reaction of carbon with oxygen to form carbon monoxide.

### Questions p353

3. Balance each equation:
  - a.  $\text{FeCl}_3 + \text{NaOH} \longrightarrow \text{Fe}(\text{OH})_3 + \text{NaCl}$
  - b.  $\text{CS}_2 + \text{Cl}_2 \longrightarrow \text{CCl}_4 + \text{S}_2\text{Cl}_2$
  - c.  $\text{KI} + \text{Pb}(\text{NO}_3)_2 \longrightarrow \text{PbI}_2 + \text{KNO}_3$
  - d.  $\text{C}_2\text{H}_2 + \text{O}_2 \longrightarrow \text{CO}_2 + \text{H}_2\text{O}$
4. Write and balance these equations;
  - a. calcium hydroxide + sulfuric acid  $\longrightarrow$  calcium sulfate + water
  - b. sodium + water  $\longrightarrow$  sodium hydroxide + hydrogen

### Questions p354

5. Write skeleton equations for these reactions:
  - a. Heating copper (II) sulfide in the presence of diatomic oxygen produces pure copper and sulfur dioxide gas.
  - b. When heated, baking soda (sodium hydrogen carbonate) decomposes to form the products sodium carbonate, carbon dioxide and water.
6. Balance the following equations:
  - a.  $\text{SO}_2 + \text{O}_2 \longrightarrow \text{SO}_3$
  - b.  $\text{Fe}_2\text{O}_3 + \text{H}_2 \longrightarrow \text{Fe} + \text{H}_2\text{O}$
  - c.  $\text{P} + \text{O}_2 \longrightarrow \text{P}_4\text{O}_4$
  - d.  $\text{Al} + \text{N}_2 \longrightarrow \text{AlN}$
7. Write and balance equations for the following reactions:
  - a. Iron metal and chlorine gas react to form solid iron (III) chloride.
  - b. Solid aluminum carbonate decomposes to form solid aluminum oxide and carbon dioxide gas.
  - c. Solid magnesium reacts with aqueous silver nitrate to form solid silver and aqueous magnesium nitrate.