

\_\_\_\_1. What is the oxidation number of carbon in  $\text{NaHCO}_3$ ?

- (A) -2 (C) -4  
(B) +2 (D) +4

\_\_\_\_2. What is the oxidation number of chromium in  $\text{K}_2\text{Cr}_2\text{O}_7$ ?

- (A) +12 (C) +3  
(B) +2 (D) +6

\_\_\_\_3. In a redox reaction, how does the total number of electrons lost by the oxidized substance compare to the total number of electrons gained by the reduced substance?

- (A) The number lost is always greater than the number gained.  
(B) The number lost is always equal to the number gained.  
(C) The number lost is sometimes equal to the number gained.  
(D) The number lost is sometimes less than the number gained.

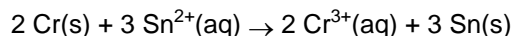
\_\_\_\_4. Which particles are gained and lost during a redox reaction?

- (A) electrons (C) neutrons  
(B) protons (D) positrons

\_\_\_\_5. In any redox reaction, the substance that undergoes reduction will

- (A) lose electrons and have a decrease in oxidation number  
(B) lose electrons and have an increase in oxidation number  
(C) gain electrons and have a decrease in oxidation number  
(D) gain electrons and have an increase in oxidation number

\_\_\_\_6. Given the redox reaction:



Which species serves as the reducing agent?

- (A) Cr (C)  $\text{Cr}^{3+}$   
(B)  $\text{Sn}^{2+}$  (D) Sn

\_\_\_\_7. In an oxidation-reduction reaction, the oxidation number of the oxidizing agent

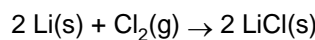
- (A) decreases (C) remains the same  
(B) increases

\_\_\_\_8. What occurs during the reaction below?



- (A) The manganese is reduced and its oxidation number changes from +4 to +2.  
(B) The manganese is oxidized and its oxidation number changes from +4 to +2.  
(C) The manganese is reduced and its oxidation number changes from +2 to +4.  
(D) The manganese is oxidized and its oxidation number changes from +2 to +4.

\_\_\_\_9. Given the reaction:



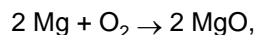
As the reaction takes place, the  $\text{Cl}_2(g)$  will

- (A) gain electrons (C) gain protons  
(B) lose electrons (D) lose protons

\_\_\_\_10. Which balanced equation represents a redox reaction?

- (A)  $\text{AgNO}_3 + \text{NaCl} \rightarrow \text{AgCl} + \text{NaNO}_3$   
(B)  $\text{BaCl}_2 + \text{K}_2\text{CO}_3 \rightarrow \text{BaCO}_3 + 2\text{KCl}$   
(C)  $\text{CuO} + \text{CO} \rightarrow \text{Cu} + \text{CO}_2$   
(D)  $\text{HCl} + \text{KOH} \rightarrow \text{KCl} + \text{H}_2\text{O}$

\_\_\_\_11. In the reaction



the magnesium is the

- (A) oxidizing agent and is reduced  
(B) oxidizing agent and is oxidized  
(C) reducing agent and is reduced  
(D) reducing agent and is oxidized

**General Chemistry**  
**Mr. MacGillivray**  
**Quiz #40:**  
**Redox Reactions**

1. What is the oxidation number of sulfur in each of the following?
  - a. \_\_\_\_\_ S
  - b. \_\_\_\_\_  $\text{SO}_4^{2-}$
  - c. \_\_\_\_\_  $\text{SO}_3^{2-}$
  - d. \_\_\_\_\_  $\text{SO}_3$
  - e. \_\_\_\_\_  $\text{SO}_2$
  - f. \_\_\_\_\_  $\text{S}_2\text{O}_3^{2-}$
  - g. \_\_\_\_\_  $\text{Na}_2\text{S}$
  
2. Identify each of the following as either oxidation ("OX") or reduction ("RED").
  - a. \_\_\_\_\_ a gain of electrons
  - b. \_\_\_\_\_ a gain of hydrogen
  - c. \_\_\_\_\_ a gain of oxygen
  - d. \_\_\_\_\_ an increase in oxidation number
  
3. For the following reaction, label the reducing agent, the oxidizing agent, the element or compound that is oxidized, and the element or compound that is reduced.

