Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Redox Review Sheet

Directions: Select the letter of the answer choice that best completes each question. Write a statement explaining why you selected your answer choice.

1. The oxidation number of sulfur in each of the following is +6 except for:  
     
   1. SO3
   2. S2O32-
   3. SO42-
   4. Na2SO4
2. Reduction is
   1. A gain of electrons
   2. A loss of electrons
   3. A gain of oxygen
   4. Both a and c
3. Identify the oxidizing agent in the following reaction. 2 Na + S 🡪 Na2S
   1. Na
   2. S
   3. Na2S
   4. Na+
4. Which of the following represents an oxidation half-reaction?
   1. Fe2+ 🡪 Fe3+ + e-
   2. Cl2 + 2e- 🡪 2 Cl-
   3. O2 + 4H+ + 4e- 🡪 2 H2O
   4. Fe3+ + e- 🡪 Fe2+
5. What will be the coefficient of HNO3 when the following equation is completely balanced using the smallest whole number coefficients? (Hint: Use the half reaction method)  
     
    HNO3 + MnCl2 + HCl 🡪 NO + MnCl4 + H2O
   1. 2
   2. 3
   3. 6
   4. 5
6. When the half reactions I2 + 2e- 🡪 2 I- and Na 🡪 Na+ + e-are correctly combined, the balanced redox equation is:
   1. Na + I + e- 🡪 Na+ + 2I-
   2. Na + I2 🡪 Na+ + 2I-
   3. 2 Na + I2🡪 2 Na+ + 2I-
   4. Na + I2 + 2e- 🡪 Na+ + 2I- + e-
7. Which of the following unbalanced equation is not redox?
   1. H2O2 (aq) + MnO4- (aq) 🡪 O2 (g) + Mn2+ (aq)
   2. H2 (g) + N2 (g) 🡪 NH3 (g)
   3. NaCl (aq) + AgNO3 (aq) 🡪 NaNO3 (aq) + AgCl (s)
   4. Cu (s) + AgNO3 (aq) 🡪 Cu(NO3)2 (aq) + Ag (s)
8. Which of the following changes in oxidation number represents oxidation?
   1. 0 to +1
   2. 0 to -1
   3. +1 to -1
   4. -1 to -2

Directions: Balance each of the following equations using the half-reaction method. Both the oxidation and reduction half-reactions must be shown.

1. \_\_\_ Cu (s) + \_\_\_ Ag+ (aq) 🡪 \_\_\_ Cu2+ (aq) + \_\_\_ Ag (s)
2. \_\_\_ Fe3+ (aq) + \_\_\_ Sn2+ (aq) 🡪 \_\_\_ Fe2+ (aq) + \_\_\_ Sn4+ (aq)
3. \_\_\_ Na+ (aq) + \_\_\_ O2- (aq) 🡪 \_\_\_Na (s) + \_\_\_ O2 (g)
4. \_\_\_\_ Mg + \_\_\_ N2 🡪 \_\_\_\_ Mg3N2
5. \_\_\_ Sb + HNO3 🡪 \_\_\_ Sb2O5 + \_\_ NO + \_\_\_ H2O

HONORS ONLY

1. Fe2+ + Cr2O72- 🡪 Fe3+ + Cr3+ (acidic solution)