Name: _____ Period: ____

Chemistry 11

Electrochemistry Sections 1, 2 & 3 - Worksheet #1

Directions: Answer in the space provided. Make sure you fully answer the questions.

1. What is the function of the salt bridge?

2. Oxidation is a _____ of electrons.
3. Reduction is a _____ of elections.
4. Create your own "memory aid" for oxidation reduction (think LEO GER).

5. What is an oxidizing agent? What is a reducing agent?

6. How can you tell when a species has been oxidized? Reduced?

7. In the following reactions, indicate the
   i. Species oxidized ii. Species Rediced iii. Oxidizing agent iv. Reducing agent

   a. $Cu + 2\ Ag^{+} \Longrightarrow Cu^{+2} + 2\ Ag$

   b. $2\ Fe^{3+} + Sn^{2+} \Longrightarrow 2\ Fe^{2+} + Sn^{4+}$

   c. $Fe + Cu^{2+} \Longrightarrow Fe^{2+} + Cu$

   d. $Na + F \Longrightarrow Na^{+} + F^{-}$

   e. $Hg^{2+} + Mn \text{ ---> } Hg + Mn^{2+}$

Name: _____ Period: ____

Section 2

8. Calculate the oxidation number of the atom in **bold** type:

(a) H**N**O_3

(b) **N**O_2^-

(c) **Cr**O_4^{2-}

(d) **Cr**$_2O_7^{2-}$

(e) **N**H_4^+

(f) H**Cl**O_4

9. Assign oxidation numbers to the bold species in each of the following unbalanced reaction equations. Then determine which species undergoes oxidation AND reduction in each reaction.

(a) **Cl**O_2 + **C** ----> **Cl**O_2^- + **C**O_3^{2-}

(b) **Sn**$^{2+}$ + Cl^- + **Br**O_3^- ----> **Sn**Cl_6^{2-} + **Br**$^-$

(c) **Mn**O_4^- + **C**$_2O_4^{2-}$ ----> **Mn**O_2 + **C**O_2

(d) **N**O_3^- + H_2**Te** ----> **N**O + **Te**O_4^{2-}

Name: _____ Period: ____

Section 3: Answer questions #8, 9, 10, 11 and 13-18 on pages 199/200 of Hebden

8a. b.

c. d.

e. f.

g. h.

i. j.

9a. b. c.

10a. b. c.

11a. b.

c. d.

e. f.

g. h.

13.

Name: _____ Period: ____

14.

15.

16.

17.

	Fe^{2+}	Au^{3+}	Ni^{2+}	Pb^{2+}
Fe				
Au				
Ni				
Pb				

18. Using data

	V^{2+}	Cd^{2+}	Ti^{2+}	Ga^{3+}
V		Rx	—	Rx
Cd	—		—	—
Ti	Rx	Rx		Rx
Ga	—	Rx	—	