4. The unit of measurement for the potential of a galvanic cell is the volt.

5. (True) or False: The measured voltage of a working electrochemical cell is always positive.

6. In the standard half cell the E on the notation E° represents cell potential

7. In the standard half cell the ° on the notation E° represents standard

8. What two species are present in the standard half cell for oxidation or reduction to take place.

$H^+_{(aq)}$ $H_{2(g)}$.

9. Write the two reactions possible in the standard half cell and state which would occur when the half cell is acting as the anode and which would occur when the half cell is acting as the cathode.
   a. The standard half cell will act as the anode with another half cell with a positive reduction potential.

   b. The standard half cell will act as the cathode with another half cell with a negative reduction potential.

10. Which three of the following are standard conditions for the half cell:
0.0 °C, (25 °C,) 100.0 °C, 0.10 M, (1.0M,) 10.0 M, 0.01 atm, 0.10 atm, (1.0 atm)

11. In the Fe/Fe^{2+} // Cu^{2+}/Cu voltaic cell which electrode is acting as the anode?
.44V $Fe \rightarrow Fe^{2+} + 2e^-$ $Cu^{2+} + 2e^- \rightarrow Cu^\circ$ 0.34V.
Which electrode would be gaining in mass?
The copper would gain mass.

12. Using the standard reduction potential table, which would be the better oxidizing agent, H_2O_2 or Zn^{2+}? $H_2O_2 + 2H^+ + 2e^- \rightarrow 2H_2O$ 1.78V. (H_2O_2)
$Zn^{2+} + 2e^- \rightarrow Zn$ −0.76V

13. What is the significance of a standard reduction potential that has a negative value?
The cell will most likely be oxidized. It will be a good reducing agent.

14. Calculate the $E°_{cell}$ and indicate if the SHE half cell will gain e- (cathode) or lose e- (anode) when the SHE half cell is connected to half cells containing the following at standard conditions.
   a. Ag in Ag^+ $Ag^+ + e^- \rightarrow Ag$ 0.80V SHE half cell will loose e−

   b. Cl^- in Cl_2 $Cl_2 + 2e \rightarrow 2Cl^-$ 1.36V. SHE half cell will lose e−

   c. Cu in Cu^{2+} $Cu^{2+} + 2e^- \rightarrow Cu^\circ$ 0.34V SHE half cell will lose e−

   d. Zn in Zn^{2+} $Zn^{2+} + 2e^- \rightarrow Zn^\circ$ −0.76V SHE half cell will gain e−

   e. Mg in Mg^{2+} $Mg^{2+} + 2e^- \rightarrow Mg^\circ$ −2.37V SHE half cell will gain e−

   f. Fe in Fe^{3+} $Fe^{3+} + 3e^- \rightarrow Fe^\circ$ −0.036V SHE half cell will gain e−