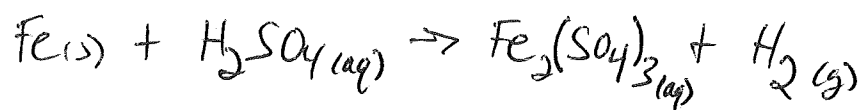


Test #1 Study Guide (ch. 19 & 20)

1. Use the following chemical equation to answer the following questions.



- a) which state(s) are broken into ions?
- b) What is the balanced equation above?
- c) What are the spectator ions?
- d) What is the total ionic equation?
- e) What is the net ionic equation?
- f) Which reactant is oxidized? Reduced?
- g) Which reactant is the oxidizing agent? Reducing Agent?
- h) What are the balanced half reactions?

oxidation

reduction

Electrochemistry - What is it?

1. What happens @ the anode? Cathode?
 3. How does current flow through a voltaic cell?
 4. What is cell potential? How do you determine it?
 5. What does a + standard Red. potential mean?
 6. What does a - standard Red. potential mean?
- * Use the following reduction reactions to determine cell potential (E_{cell}°)
- $$\text{Mg}^{2+}_{(\text{aq})} + 2\text{e}^{-} \rightarrow \text{Mg}_{(\text{s})} \quad \& \quad 2\text{H}^{+}_{(\text{aq})} + 2\text{e}^{-} \rightarrow \text{H}_2(\text{g})$$
7. What are the standard reduction potentials for each?
 8. Which equation is the reduction (Cathode)?

3

9. Which equation is the oxidation (Anode)?

- what does the oxidation reaction provide for the cell?

10. What is the cell potential? $E_{\text{cell}}^{\circ} = E_{\text{red}}^{\circ} - E_{\text{ox}}^{\circ}$

11. Is the reaction spontaneous or non-spontaneous?

12. What does being spontaneous mean for a voltaic cell?

13. What is the cell notation for the redox reaction?

14. How does redox relate to the function of a battery?

15. Why are some batteries (primary) not rechargeable & some (secondary) are?

(4)

16. Why do we not use carbon dry cells to power household devices, like cell phones?
17. What are the benefits of Ni-cad batteries?
18. What are the benefits of lead-acid batteries like car batteries?
19. What is a hydrogen fuel cell? Why is this considered to be a clean energy source?
20. What does galvanization do for metal objects?
21. What is the function of a sacrificial anode?