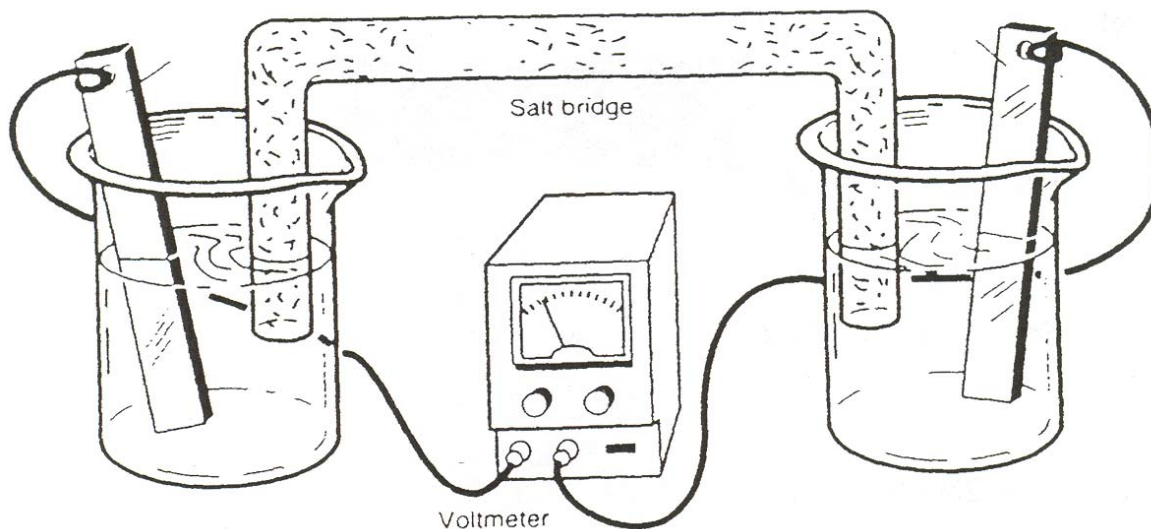


Practice Celebration REDOX

- ___ 1. What is the oxidation number of carbon in the hydrogen carbonate ion?
A. +1 B. +4 C. +5 D. -6
- ___ 2. Which of these would be an example of a NON-SPONTANEOUS redox?
A. using a 9 volt battery B. using a voltaic cell
C. the electrolysis of water D. starting a car with a battery
- ___ 3. We lit magnesium metal on fire and it converted to magnesium oxide.
Which of these shows the half oxidation reaction?
A. $\text{Mg} \rightarrow \text{Mg}^{+2} + 2\text{e}^{-}$
B. $\text{Mg}^{+2} + 2\text{e}^{-} \rightarrow \text{Mg}^0$
C. $\text{O}_2^0 \rightarrow \text{O}^{-2}$
D. $2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$
- ___ 4. In an electrolytic cell which is true:
A. reduction happens at the anode
B. reduction happens at the cathode
C. oxidation happens at the cathode
D. oxidation and reduction happen between the cathode and anode
- ___ 5. The salt bridge
A. allows for the flow of electrons
B. allows for the flow of electricity
C. stops the flow of ions
D. allows for the flow of ions
- ___ 6. The electrode that loses mass is
A. cathode B. anode C. both cathode and anode D. neither
- ___ 7. $\text{Zn}_{(\text{S})} + \text{HCl}_{(\text{AQ})} \rightarrow$ Which species is oxidized in this reaction?
A. Zn B. HCl C. H^{+} D. Cl^{-}
- ___ 8. Which is a reason that a battery would run out of "juice"?
A. too many electrons B. run out of cathode
C. clog salt bridge with ions D. run out of anode
- ___ 9. In this reaction is completed, which species is reduced?
 $\text{Ca} + \text{HCl} \rightarrow ?$ A. Ca B. H^{+} C. Cl^{-} D. HCl
- ___ 10. Reduction happens at the cathode is true for:
A. voltaic cells only B. electrolytic cells only
C. voltaic and electrolytic cells D. 12 volt rechargeable batteries only
- ___ 11. The salt bridge in a voltaic cell must be:
A. aqueous B. solid C. gaseous D. able to go over small rivers

Fully label the diagram below showing strontium electrode in strontium fluoride solution at left, a salt bridge with sodium chloride solution, and on right, iron in iron (III) bromide solution.



12. Write the $\frac{1}{2}$ reactions:

$\frac{1}{2}$ Ox: _____ $\frac{1}{2}$ Red: _____

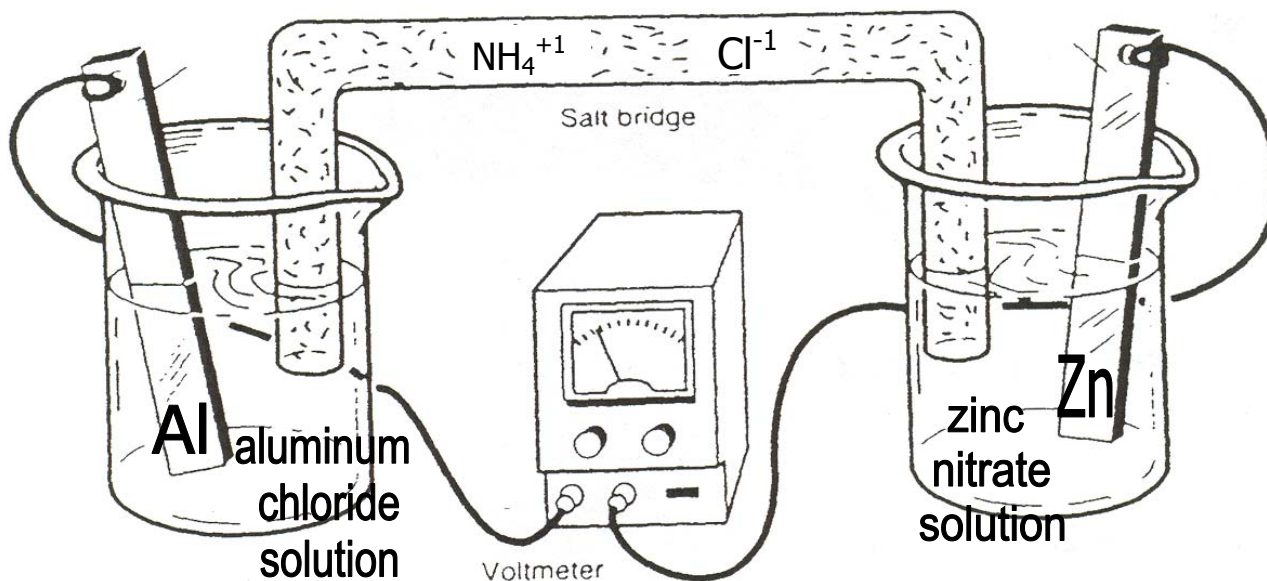
14. Write the Net Ionic Equation: _____

15. What is the reducing agent? _____ What is the oxidizing agent? _____

16. Which electrode loses mass? _____ Where does it go? _____

17. This voltaic cell converts _____ into _____
_____.

18. Describe the function of the salt bridge



19. Which is the anode? A. Al B. Zn C. aluminum chloride D. ammonium chloride
20. The NH_4^{+1} will move towards the beaker with the A. $\text{AlCl}_3(\text{AQ})$ B. $\text{Zn}(\text{NO}_3)_2(\text{AQ})$
21. The flow of electrons goes from
 A. Al to Zn B. Zn to Al C. Al^{+3} to Cl^- D. Zn^{+2} to 2Cl^-
22. This question has six choices... This reaction:
 A. is spontaneous B. is non-spontaneous C. creates electric energy
 D. creates chemical energy E. Both A and C F. Both A and D
23. Reduction takes place at...
 A. the anode which is aluminum B. the cathode which is aluminum
 C. the anode which is zinc D. the cathode which is zinc
24. The electrode that will lose mass will be the...
 A. the anode which is aluminum B. the cathode which is aluminum
 C. the anode which is magnesium D. the cathode which is magnesium
25. In this redox reaction: $4\text{Al} + 3\text{O}_2 \rightarrow 2\text{Al}_2\text{O}_3$ which species is oxidized?
 A. Al B. 3O_2 C. Al^{+3} D. 12 electrons
26. In this redox reaction: $\text{Zn}^0 + \text{Pb}^{+2} \rightarrow \text{Zn}^{+2} + \text{Pb}^0$ which species is reduced?
 A. Zn^0 B. Pb^{+2} C. Zn^{+2} D. Pb^0
- 27 & 28. An electrolytic cell converts _____ (27) energy into _____ (28) energy.
- 29 & 30. A voltaic cell converts _____ (29) energy into _____ (30) energy.