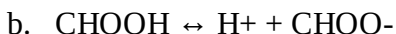


Honors Chem Review Problems Key

a.



c. $K_a = \frac{[\text{H}^+][\text{CHOO}^-]}{[\text{CHOOH}]}$

d. $\text{pOH} = 11.8$ $\text{pH} = 2.2$

e. 2.68% ionized

a. 0.0600 g H_2

b. 6.38g CuSO_4

c. 0.120 M Mg^{+2}

a. 8.8×10^{-6} atm

b. 2.83×10^{-19}

c. $\Delta S = +$ bc more gases are formed and a solid is turned into a gas

a. $\text{C}_2\text{H}_4\text{O}_3$

b. 151.7g/mol

c. $\text{C}_4\text{H}_8\text{O}_6$

a. $\Delta S = (-)$ bc 2 particles become 1, and gases become a solid

b. Not affected: solids have a constant concentration and do not change the equilibrium

a. $\text{Rate} = k [\text{NO}_2]^1 [\text{Cl}_2]^1$

b. 2nd order overall

c. $2.7 \times 10^{-4} \text{ M}^{-1}\text{sec}^{-1}$

d. $2.4 \times 10^{-6} \text{ M/sec}$

a. Mg $1s^2 2s^2 2p^6 3s^2$ Ar $1s^2 2s^2 2p^6 3s^2 3p^6$

b. Mg -2 dots Ar -8 dots

c. Both IE values continuously increase

d. the 3rd electron of Mg is a core electron, is held more tightly by the atom (more strongly attracted to the nucleus), and requires more energy to remove

e. YCl, gamma chloride-bc it easily loses 1 electron forming a +1 ion

a. $\text{H}_2\text{X} \rightarrow 2\text{H}^+ + \text{X}^{2-}$

- b. $[H_3O^+] = 5.75 \times 10^{-6} M$
- c. $[H_2X] = 2.52 \times 10^{-5} M$
- d. 0.0603 L of solution

a, b, c, d-anode = oxidation = $2Cl^- \rightarrow Cl_2 + 2e^-$ Electrons flow FROM here cathode = reduction = $2H^+ + 2e^- \rightarrow H_2$ Electrons flow TO here

- e. i) 5400C (ii) 0.0560 moles of e^- (iii) $V = 0.628 L$ at STP

a. $Mg(OH)_2 \rightarrow Mg^{+2} + 2OH^-$

$$K_{sp} = [Mg^{+2}] [OH^-]^2$$

- b. $K_{sp} = 5.62 \times 10^{-12}$
- c. $pH = 10.4$
- d. $[Mg^{+2}] = 1.25 \times 10^{-3} M$ $[OH^-] = 2.68 \times 10^{-3} M$
Yes, 8.98×10^{-9} = experimental K_{sp} , greater than accepted K_{sp}

$\Delta H_f: C_6H_{12}O = 2801 kJ$

- a. -1275 kJ
- b. 5.6kJ
- c. -2484kJ

- a. $CO_2 = NP$, $NH_3 =$ polar
- b. $CO_2 = sp$ hybridization $NH_3 = sp^3$

- a. Anode: $Ba \rightarrow Ba^{+2} + 2e^-$
Cathode: $Cu^{+2} + 2e^- \rightarrow Cu$
- c. +3.24, +1.52
- d. No, voltage is negative

0.900 J/g°C

$T_f = 10.9^\circ C$

Multiple Choice:

- 1. d 2. e 3. e 4. e 5. a 6. a 7. b 8. d 9. c 10. e 11. c 12. d
- 13. b 14. b,e 15. a 16. b 17. e 18. a 19. c 20. d 21. c 22. a 23. a
- 24. b 25. a 26. c 27. c 28. a 29. a 30. d 31. c 32. 12.0g 33. d
- 34. 19,300C 35. a 36. d