AP CHEMISTRY CHAPTER 16 PRACTICE TEST

1. Given the following reaction at equilibrium:

Al(OH)3(s) ↔ Al3+(aq) + 3OH-(aq)

What is the correct expression for the solubility product constant (Ksp) for this reaction?

1. [Al3+][OH-]3
2. [Al3+][3OH-]
3. [Al3+][OH-]3/ [Al(OH)3]
4. [Al(OH)3]/ [Al3+][OH-]3
5. What will happen when 0.10 M HCl(aq) is added to the equilibrium system:

AgCl(s) ↔ Ag+(aq) + Cl-(aq)

1. The [Ag+] will increase and dissolve more AgCl
2. The [Ag+] will increase and precipitate more AgCl
3. The [Ag+] will decrease and precipitate more AgCl
4. The [Ag+] will decrease and dissolve more AgCl
5. The Ksp for CuS = 6.0 x 10-36, and the Ksp for CoS = 4.0 x 10-21. Based on the Ksp values provided, which of the following is true?
6. The concentration of ions in a saturated solution of CuS is greater that than of CoS, therefore CuS is more soluble in water than CoS
7. The concentration of ions in a saturated solution of CuS is greater than that of CoS, and therefore CuS is less soluble in water than CoS
8. The concentration of ions in a saturated solution of CuS is less than that of CoS, and therefore CuS is less soluble in water than CoS
9. The concentration of ions in a saturated solution of CuS is less than that of CoS, and therefore CuS is more soluble in water than CoS
10. PbCl2 is a slightly soluble salt. The concentration of Cl- in a saturated solution of PbCl2 is 0.032 M. What is the Ksp for PbCl2 is
11. 2.1 x 10-4
12. 6.6 x 10-5
13. 3.3 x 10-5
14. 1.6 x 10-5
15. 1.0 x 10-3
16. The Ksp for Bi2S3 is 1.1 x 10-73. The molar solubility of Bi2S3 is:
17. 1.0 x 10-15
18. 1.8 x 10-15
19. 2.6 x 10-15
20. 3.2 x 10-13
21. 5.1 x 10-13
22. Find the solubility of Ag2CrO4 in a 0.15 M aqueous solution of AgNO3.
23. Suppose that 1.5 x 10-8 mol of Pb(NO3)2 is combined with 1.5 x 10-8 mol of Na3AsO4 in 100.0 mL of solution. Will Pb3(AsO4)2 precipitate? Ksp for Pb3(AsO4)2 is 4.0 x 10-36
24. If Na2S is added slowly to an aqueous solution containing 0.010 M Ag+ and 0.010 M Bi3+, which sulfide salt will precipitate first? Ksp of Ag2S = 6.0 x 10-46 and Ksp of Bi2S3 =1.1 x 10-73

ANSWERS

1. A
2. C
3. C
4. D
5. A
6. [CrO4-] = 4.0 x 10-10
7. Q>Ksp therefore it will precipitate
8. Ag2S will precipitate first