Name _____ Block: _____ Date: _____

Chemistry 12

ACID & BASE EQUILIBRIUM CONSTANTS

***EXERCISES*:**

31. Write the K_a expression for the reaction in which each of the following acts as an acid with water.
    a) HCN b) HPO_4^{2-} c) HNO_2

32. Write the K_b expression for the reaction in which each of the following acts as a base with water.
    a) HS^- b) CH_3NH_2 c) F^-

33. You have a 1 M solution of an acid with $K_a = 1 \times 10^{-5}$ and a 1 M solution of an acid with $K_a = 1 \times 10^{-10}$. Which solution contains the greater concentration of H_3O^+ ?

34. You have a 1 M solution of a base with $K_b = 5 \times 10^{-12}$ and a 1 M solution of a second base with $K_b = 7 \times 10^{-6}$. Which solution contains the greater concentration of OH^- ?

35. Use your table of Relative Strengths of Acids to calculate K_b for the following bases.
    a) SO_4^{2-} c) HCO_3^- e) HSO_3^-
    b) $Al(H_2O)_5(OH)^{2+}$ d) HPO_4^{2-} f) HS^-

36. Given that $K_b = 1.7 \times 10^{-6}$ for N_2H_4, what is K_a for $N_2H_5^+$?

37. If a substance has a K_b value of 2×10^{-10}, is the substance a weak acid, a strong acid, a weak base or a strong base? Explain your answer.