**Name: Period: Seat#:**

**Worksheet #6**

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| 1. Write an expression for the ionization constant, Kb for each reaction. | |
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| 1. Predict whether each equilibrium lies primarily to the left or to the right. Explain for each. | |
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| 1. Calculate the pH of a 0.0010 M solution of formic acid, HCO2H. Ka = 1.8 x 10-4 | |
| 1. Calculate (a) the pH and (b) the percent ionization of a 0.250 M HC2H3O2 solution. Ka(HC2H3O2) = 1.8 x 10-5. (The formula for acetic acid may also be written as CH3COOH.)   *HINT: Begin by filling out the equilibrium table below.*   |  |  |  |  | | --- | --- | --- | --- | | **Balanced Equation** | **HC2H3O2 ↔** | **H+  +** | **C2H3O2–** | | Initial Concentration (M) |  |  |  | | Change (M) |  |  |  | | Equilibrium Concentration (M) |  |  |  | | |
| 1. Calculate the pH of a 0.600 M solution of methylamine CH3NH2.   Kb = 4.4 x 10–4 *HINT: Methylamine is a weak base. Then fill out the equilibrium table below.*   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Rxn** | **CH3NH2 +** | **H2O ↔** | **CH3NH3+ +** | **OH–** | | I |  |  |  |  | | C |  |  |  |  | | E |  |  |  |  | | |
| 1. The pH of a 0.10 M solution of a weak base is 9.67. What is the Kb of the base? \*Hint\* - use a generic base equation when you don’t know what the base is! B- + H2O ↔ HB + OH- | |
| 1. Calculate the concentration of OH- in a 0.25 M solution of NH3. Look up the Kb of NH3 in your reference sheet. | |
| 1. Identify the conjugate acid–base pairs in each equilibrium. Color code the pairs: acid and conjugate bases should be circled/highlighted/labeled in one color, base and conjugate acids in another. | |