

Name: \_\_\_\_\_ Period: \_\_\_\_ Date: \_\_\_\_\_

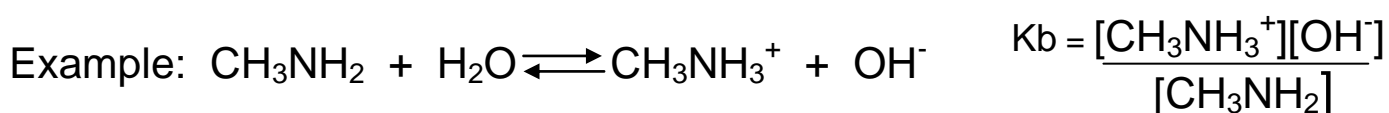
### Homework:

Utilizing the table of  $K_a$  and  $K_b$  values provided below, calculate the pH of the following solutions by following this procedure:

- write the ionization reaction, (*recall an acid loses  $H^+$ , a base gains it*)
- then write the equilibrium expression,
- utilizing the  $K_a$  or  $K_b$  as appropriate for the reaction
- follow-up by solving for  $H^+$  or  $OH^-$  and then
- find the pH (*you may have to convert*)

Weak Acids	$K_a$	$pK_a$
$HNO_2$	$4.5 \times 10^{-4}$	3.35
HF	$6.5 \times 10^{-4}$	3.19
HCN	$4.9 \times 10^{-10}$	9.31
$HC_2H_3O_2$	$1.8 \times 10^{-5}$	4.74
Weak Bases	$K_b$	$pK_b$
$NH_3$	$1.8 \times 10^{-5}$	4.74
$N_2H_4$	$1.7 \times 10^{-6}$	5.77
$CH_3NH_2$	$3.8 \times 10^{-10}$	9.42

Note: include water as a reactant in the base ionization *reactions* but do NOT include water in the final equilibrium expression as it is also the solvent in these aqueous reactions.



1. 0.30 M  $HNO_2$
2. 1.00 M HF
3. 0.025 M HCN
4. 0.136 M  $HC_2H_3O_2$
5. 0.15 M  $NH_3$
6. 0.20  $N_2H_4$
7. 0.010 M  $CH_3NH_2$