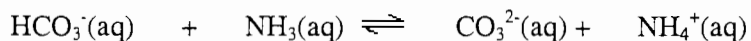


Show all work to receive credit

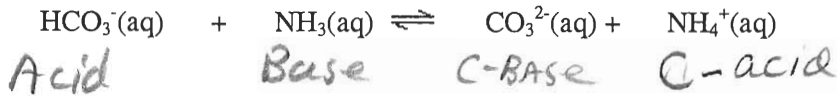
1. (2 Pts) Label the acid, base, conjugate acid and conjugate base in the following reaction



2. (2 Pts) What is the conjugate acid of $\text{HPO}_4^{2-}(\text{aq})$? _____
3. (4 Pts) A solution is prepared by diluting 0.25 mol HNO_3 to a volume of 750 mL. What is the pH of this solution?
4. (3 Pts) At 298 K, what is the H_3O^+ concentration of a solution with a OH^- concentration of 2.88×10^{-2} M?
5. (4 Pts) What is the pH of 1.3×10^{-5} M NaOH at 25°C?
6. (5 Pts) Benzoic acid has a $\text{p}K_a$ value of 4.20. Determine the pH of a 0.075 M benzoic acid solution.
7. (5 Pts) The K_b of trimethylamine [$(\text{CH}_3)_3\text{N}$] is 6.2×10^{-5} . Determine the pH of a 0.075 M trimethylamine solution.

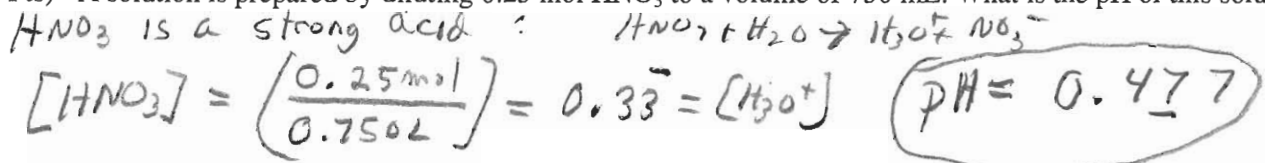
Show all work to receive credit

1. (2 Pts). Label the acid, base, conjugate acid and conjugate base in the following reaction

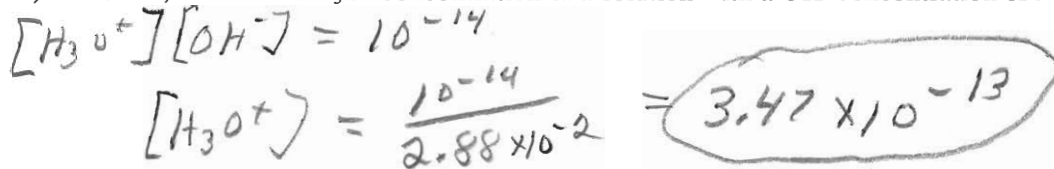


2. (2 Pts) What is the conjugate acid of $\text{HPO}_4^{2-}(\text{aq})$? $\text{H}_2\text{PO}_4^{1-}$

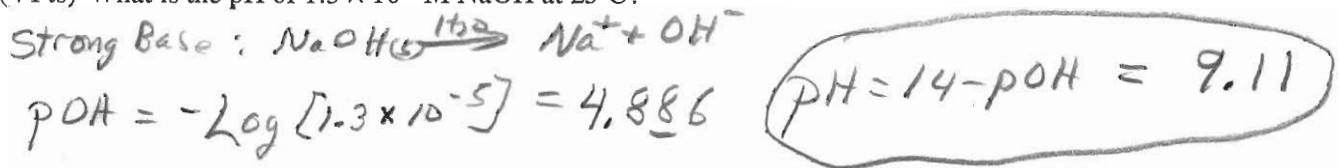
3. (4 Pts) A solution is prepared by diluting 0.25 mol HNO_3 to a volume of 750 mL. What is the pH of this solution?



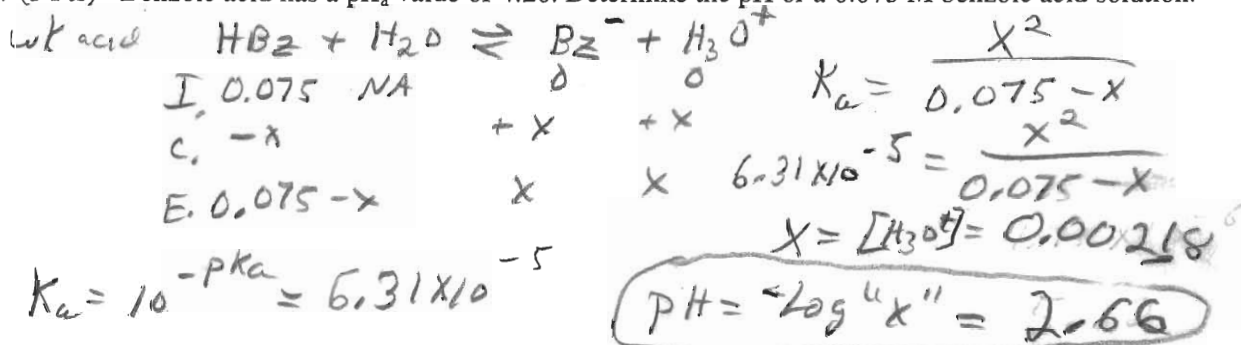
4. (3 Pts) At 298 K, what is the H_3O^+ concentration of a solution with a OH^- concentration of $2.88 \times 10^{-2} \text{ M}$?



5. (4 Pts) What is the pH of $1.3 \times 10^{-5} \text{ M NaOH}$ at 25°C ?



6. (5 Pts) Benzoic acid has a pK_a value of 4.20. Determine the pH of a 0.075 M benzoic acid solution.



7. (5 Pts) The K_b of trimethylamine $[(\text{CH}_3)_3\text{N}]$ is 6.2×10^{-5} . Determine the pH of a 0.075 M trimethylamine solution.

