

REVIEW QUESTIONS

Test 2

1. Calculate the pH of a 1.8 M solution of methyl amine (CH_3NH_2). $K_b=4.38 \times 10^{-4}$.
2. Calculate the pH of a solution prepared by adding 40.0 mL of 0.10M NH_3 to 20.0 mL of water. (K_b of $\text{NH}_3 = 1.8 \times 10^{-5}$)
3. Calculate the pH of a solution resulted from mixing 200. mL of HCl solution (pH=3.00) with 100. mL of HCl solution (pH=2.00).
4. How many grams of ammonia are needed to make 1.25 L solution with a pH of 11.68? (K_b of $\text{NH}_3 = 1.8 \times 10^{-5}$)

5. The solubility of $\text{CO}_2(\text{g})$ in pure water is 0.0037 mol/L . Assuming that dissolved CO_2 is in the form of $\text{H}_2\text{CO}_3(\text{aq})$, what is the pH of a 0.0037 M solution of dissolved CO_2 ? (K_{a1} for $\text{H}_2\text{CO}_3 = 4.3 \times 10^{-7}$)
6. Calculate the pH of a $7.5 \times 10^{-6} \text{ M}$ solution of $\text{Mg}(\text{OH})_2$.
7. Phenol ($\text{C}_6\text{H}_5\text{OH}$) has a K_a value of 1.6×10^{-10} . What is the K_b value for phenoxide ion ($\text{C}_6\text{H}_5\text{O}^-$)?
8. A benzoic acid solution ($\text{C}_6\text{H}_5\text{CO}_2\text{H}$) has a pH of 2.80. Given that K_a of benzoic acid is 6.4×10^{-5} , calculate the concentration and percent dissociation of this acid.

