

## Answer Key: ACIDS AND BASES: $K_a$ and $K_b$ PROBLEMS

1.  $K_a = 8.064 \times 10^{-3}$
2.  $K_a = 5.625 \times 10^{-5}$
3.  $K_a = 4 \times 10^{-8}$
4.  $K_a = 1.67 \times 10^{-4}$
5.  $\text{pH} = 4.58$
6. 6.28 %
7. 3 %
8.  $K_a = 6.90 \times 10^{-4}$
9.  $\text{pH} = 2.36$
10.  $\text{pH} = 4.93$
11.  $K_b = 5.5 \times 10^{-4}$
12.  $K_b = 4.48 \times 10^{-4}$
13.  $K_b = 3.03 \times 10^{-11}$
14.  $K_b = 5 \times 10^{-6}$
15.  $\text{pH} = 4$
16.  $\text{CH}_3\text{NH}_2 + \text{BF}_3 \rightarrow \text{CH}_3\text{NH}_2\text{BF}_3$
17. c) d) e)
18.  $\text{pH} = 10.8$
19.  $K_b = 2.11 \times 10^{-7}$      $\text{p}K_b = 6.68$      $\text{p}K_a = 7.32$
20.  $K_b = 5.65 \times 10^{-4}$      $\text{p}K_b = 3.25$      $\text{p}K_a = 10.75$