WEB QUIZ #3: ACIDS AND BASES

I. At 0°C, the value of $K_w$ is $1.14 \times 10^{-15}$.

   Question no. 1: Calculate the $[H^+]$ in mol/L in pure water at 0°C.

   **Answer #1:** $3.38 \times 10^{-8}$

   Question no. 2: What is the pH of pure water at 0°C?

   **Answer #2:** 7.47

II. For a solution with pH = 8.66.

   Question #3: Calculate $[H^+]$ in mol/L

   **Answer #3:** $2.2 \times 10^{-9}$

   Question #4: Calculate $[OH^-]$ in mol/L

   **Answer #4:** $4.6 \times 10^{-6}$

II. Calculate the pH of each of the following solutions containing a strong acid in water.

   Question #5: 4.0 M HNO₃

   **Answer #5:** -0.60

   Question #6: $6.2 \times 10^{-12}$ M HNO₃

   **Answer #6:** 7.0

III. Calculate the pH of solution that contains 1.0 M HF and 1.0 M HO₆H₅. Also calculate the concentration of $OC₆H₅^-$ in this solution at equilibrium.

   Question #7: pH of the solution =

   **Answer #7:** 1.57

   Question #8: $[OC₆H₅^-]$ =
Answer #8: $5.9 \times 10^{-9}$

IV. Calculate the percent dissociation of 0.0050 M acetic acid. Only include the number and not the percent sign in the answer.

Question #9: percent dissociation =

Answer #9: 5.8

V. In a 0.100 M solution of HF, the percent dissociation is 8.1 %.

Question #10: Calculate $K_a$.

Answer #10: $7.0 \times 10^{-4}$

VI. Calculate the percent ionization in the following solution. Only include the number and not the percent sign in the answer.

Question #11 0.10 M hydroxylamine (HONH$_2$, $K_b = 1.1 \times 10^{-8}$)

Answer #11: 0.033

VII. Using the $K_a$ values in Table 14.4 for a 0.10 M solution of H$_2$CO$_3$.

Question #12: Calculate the pH of the solution.

Answer #12: 3.68

Question #13: What is the [CO$_3^{2-}$]?

Answer #13: $5.6 \times 10^{-11}$

VIII. Question #14: Calculate the pH of a 0.10 M CH$_3$NH$_3$Cl.

Answer lucky #14: 5.82