

Topics for the Quiz/Test on acids, bases, and pH on

Study Worksheets 14.1 -14.5, the cabbage lab, and the titration lab.

(WS 14.6 also has good practice problems. It is posted on the website, with answers.)

(The final exam review sheet also has some relevant problems – see #5, 6, 47, and 48)

Know (and be able to use) these equations:

$$\text{pH} = -\log[\text{H}^+] \quad [\text{H}^+] = 10^{-\text{pH}} \quad [\text{H}^+][\text{OH}^-] = K_w = 1.00 \times 10^{-14} *$$

$$[\text{H}^+] = \text{molarity of H}^+ = \frac{\text{moles of H}^+}{\text{Liters of solution}} \quad [\text{OH}^-] = \text{molarity of OH}^- = \frac{\text{moles of OH}^-}{\text{Liters of solution}}$$

$$1 \text{ L} = 1000 \text{ mL}$$

$$M_a V_a = M_b V_b **$$

Know the following names and formulas:

(other ion formulas would be given, as needed.)

H^+ = hydrogen ion

OH^- = hydroxide ion

CO_3^{2-} = carbonate ion

NH_3 = ammonia

Know that hydrogen ion is acidic, and that hydroxide ion, carbonate ion, and ammonia are basic.

Be able to write a reaction showing why carbonate ion is basic, and why ammonia is basic.

Be able to write reactions involving acids and bases. (for example, those on page 1 of WS 14.5)

Classify solutions as acidic, basic, or neutral, based on the pH value.

Classify substances as acidic/basic/neutral based on the name or formula of the compound, (like WS 14.4 #1, and WS 14.5 #11)

Be able to write formulas and names for acids and ionic compounds (like WS 14.2 #1 and 2, and WS 14.5 #11)***

Calculating pH of a solution based on mass or moles of solute, and a volume (so you have to start by calculating the molarity), like WS 14.4 #2.

Titration:

Know, and be able to use, this equation: $M_a V_a = M_b V_b$.

**when do you need a 2 or 3, and on which side?

What is an indicator? What is a standard solution?

General pH stuff.. what does it mean to have low pH? high pH... why is it a “logarithmic” scale?

For example, what happens to the $[\text{H}^+]$ if the pH drops by 3 points? (See WS 14.5 #1)

*The value of K_w will be given (1.0×10^{-14}), but you need to know when/how to use the number.

*** This chart will be given:

Anion Name

Acid Name

_____ate ion

_____ic acid

_____ite ion

_____ous acid

_____ide ion

hydro_____ic acid