

1 20
2 20
3 20
4 20
5 17

Name Toole, Jr.
Last First

Laboratory Instructor Mr. Deck (?)

I. 0.613 g. of an acid required the addition of 11.70 ml. of 0.382 N NaOH to neutralize the acid completely. What is the equivalent weight of the acid?

97

0.613

$$\frac{11.70 \cdot 382}{26740} = 4.5$$

$$\frac{0.613}{4.5} = \frac{x}{1000}$$

$$4.5x = 613$$

$$x = 136.2$$

136.2

II. a) Define, in words, what you mean by normality.

Normality means no. equivalents wts per liter of solution.

b) Give a simple work equation defining normality.

$$\text{Normality} = \frac{\text{no. equivalent wts of solid or liquid}}{\text{no. liters of dissolver (H}_2\text{O)}}$$

c) How many equivalents, and how many grams of NaOH, are there in 200 ml. of 0.300 N NaOH?

Na 23
O 16
H 1

$$\frac{200}{40} \times 40 = 2000$$

$$\frac{2000}{12} = 166.67$$

$$166.67 \times 40 = 6666.7$$

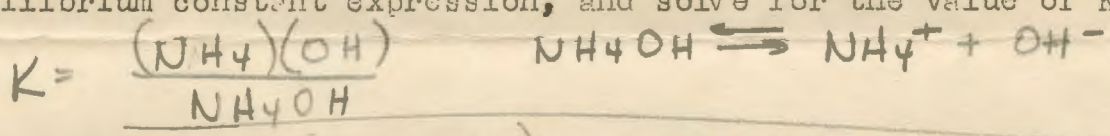
2.4 g
.06 equiv

III. List the following solutions in order of increasing pH. (Highest H⁺ concentration on top). Indicate the order.

1F Na₂CO₃, 1F NH₄C₂H₃O₂, 1F NaOH, 1F (NH₄)₂SO₄, 1F HCl

1. HCl
 2. (NH₄)₂SO₄
 3. NH₄C₂H₃O₂
 4. Na₂CO₃
 5. NaOH
- Highest H⁺ conc.
↓
Lowest H⁺ conc.

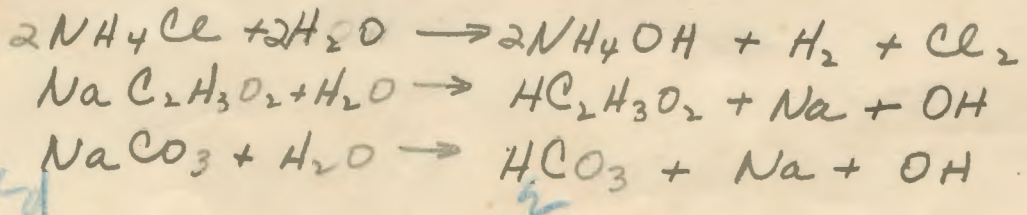
IV. The OH⁻ concentration of 0.01F ammonium hydroxide, NH₄OH, is 4.2 X 10⁻⁴ M. Write the equilibrium equation for its ionization, the equilibrium constant expression, and solve for the value of K.



$$K = \frac{(0.00042)(0.00042)}{0.01} = 0.00001764$$

K = 17.6 x 10⁻⁶

V. Write balanced equations for the hydrolysis of NH₄Cl, NaC₂H₃O₂, and Na₂CO₃.



not balanced