Lab 2*c* Acids, Bases, and pH

Name _____ Seat number ____

Objectives:

1. *Acids, bases, and pH*
2. *pH wet lab*
3. *pH applications*
4. *Questions*

A. Acids, Bases, and pH

1) pH is the measure of the concentration of H ions in a solution.
   a) The pH scale ranges from ____ to _____.
   b) Circle one
      i) As the H ion concentration increases, the solution becomes more (acidic | basic).
      ii) The (acids | bases) having a pH less than 7 and the (acids | bases) having a pH greater than 7. When the pH is 7, the solution is neutral.

B. pH measurement

A simple way to measure pH is to use pH paper. To test the pH with pH paper, drop one or two drops of the sample solution on the paper and compare the color change with the colors on the side of the pH paper container.

Step 1 Obtain 2 samples of known acids and bases. Then measure the pH of each acid and base using pH paper and record their pH values in the table below.

Step 2 Obtain two unknown samples and measure and record their pH in the same manner.

Samples	Name of sample	pH
Acid		
Base		
	Acid, base, or neutral?	
Unknown 1		
Unknown 2		

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E. pH applications - buffering

The stomach contains concentrated hydrochloric acid (HCl), which ranges in pH ranges from 1 to 3. Antacids are medicines that neutralize stomach acids in a variety of conditions including heartburn. We will compare the effect of 3 common antacids.

Step 1 Obtain 3 glass tubes and number them 1, 2, and 3.

Step 2 Obtain a bottle of 0.1 M HCl and record its pH. _____

Step 3 In each test tube, place 2 ml of the HCl

Step 4 Add ¼ of one crushed Tums tablet into test tube 1.

Step 5 Add ¼ of one crushed Pepto-Bismol tablet into test tube 2.

Step 6 Add ¼ of one crushed Alka-Seltzer tablet to tube 3.

Step 7 Allow the tubes to sit for 3 minutes.

Step 8 Measure the pH of each tube and record their values in the table below.

Antacid	Active ingredient	pH
Tums		
Pepto-Bismol		
Alka-Seltzer		

F. Questions

1) What effect did the antacids have on the acid?

2) What antacid was most effective?