**Formal Report of Group II**

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| --- | --- | --- |
| **Scoring Rubrics for Formal Reports** | Points | Score |
| The question to be answered during the laboratory is stated |  |  |
| The hypothesis clearly shows it is based on research |  |  |
| Research references to prepare the lab are listed  |  |  |
| Results of procedure are clearly stated |  |  |
| Summarize the essential laboratory data |  |  |
| State how the essential data answers the lab questions |  |  |
| Report is neatly printed with ink, with no visible corrections |  |  |
| The lab report is written in such a way that others could accurately duplicate the experiment |  |  |
| **TOTAL** |  |  |

|  |  |
| --- | --- |
| ph determination of acids, bases & Neutral salts | C:\Users\Alleta\Desktop\folders\jrl.jpg  |

1. **Objectives** :
* Measure pH of a solution using pH meter
* Solve problems on pH, pOH and hydrogen ion or hydroxide concentration
* Estimate the pH of a solution for weak and strong acids or base
1. **Theoretical Background**:
* A **pH meter** is an electronic device used for measuring the [pH](http://en.wikipedia.org/wiki/PH) ([acidity](http://en.wikipedia.org/wiki/Acid) or [alkalinity](http://en.wikipedia.org/wiki/Base_%28chemistry%29)) of a liquid (though special probes are sometimes used to measure the pH of semi-solid substances). A typical pH meter consists of a special measuring probe (a [glass electrode](http://en.wikipedia.org/wiki/Glass_electrode)) connected to an electronic meter that measures and displays the pH reading.
1. **Schematic Procedure:**

Compare the estimated pH from the pH value registered in pH meter.



Calculate the pH of a sol’n using quadratic equation from

the M concen-trations of a sol’n.

Determine the hydrogen ion con-centration for acids and hydroxide ion con-centration for bases.

Place the labeled test tubes containing the solution in a test tube rack and determine the pH using pH meter.



 Prepare solution based on the following Molar concentrations : 0.05 M, 0.25 M, 0.5 M and 1.0 M.

**IV. Results and Discussions:**

**Data and Results**

|  |  |  |
| --- | --- | --- |
| **Solutions** | **pH (using pH meter)** | **Estimated pH** |
| **HCl** |  | **Not Given** |
| **0.05** | **2.0 [H+]= 0.010** |
| **0.25** | **1.8 [H+]= 0.016** |
| **0.50** | **1.3 [H+]= 0.050** |
| **1.00** | **1.1 [H+]= 0.079** |
| **Oxalic Acid** |  | **5.4x10-2** |
| **0.05** | **2.9 [H+]= 1.26x10-3** |
| **0.25** | **2.4 [H+]= 3.98x10-3** |
| **0.50** | **2.1 [H+]=7.94x10-3** |
| **1.00** | **1.8 [H+]= 0.016** |
| **NaCl** |  | **Not Given** |
| **0.05** | **6.0 [H+]= 1x10-6** |
| **0.25** | **5.8 [H+]= 1.58x10-6** |
| **0.50** | **5.8 [H+]= 1.58x10-6** |
| **1.00** | **5.7 [H+]= 2.5x10-6** |
| **Nail Polish** |  | **Not Given** |
| **0.05** | **7.1[OH+]= 1.26x10-7** |
| **0.25** | **7.3[OH+]= 2x10-7** |
| **0.50** | **7.4[OH+]= 3.98x10-7** |
| **1.00** | **8.5[OH+]= 3.16x10-7** |

1. Which solutions in the table above are acidic?basic? neutral? Why do you think they are basic, acidic or neutral?
* HCl, C2H2O4 and NaCl are in acidic solution because their H+ concentration is >1.0X10-7 M and their pH is <7.00 same with the nail polish which is in basic solution because their OH- concentration is <1.0X10-7M and pH is >7.00
1. Which of the solutions has the most concentrated hydrogen ions? Hydroxide ions?
* HCl has the most concentrated H+ ions while nail polish has the most concentrated OH- ions.
1. What can you concede about the relationship between the concentration of hydrogen ions and the p H of the solution, between the hydroxide ion and the pH?
* pH increases as H+ decreases vice versa with OH-
1. **Conclusion**
* As the pH increases in acids, the acids lose their ability to ionize in water, so less hydrogen ions are produced.
1. **References:**
* Group 1 formal Report (2011)
* <http://en.wikipedia.org/wiki/PH_meter>

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Submitted to Mr. Jeffrey Sta. Ines