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Lab 1: Physiological Instrumentation

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**Purpose**: The purpose for this experiment was to collect data and convert the data collected into the right measurements. While getting acquainted with the equipment provided for the experiment. When working on the experiment we used different equipment involving chemicals that helped us monitor the change in the ion meters and pH in which we converted ions to liters.

**Procedures:** In the this experiment we were converting different measurements as well as getting a feel for the equipment provided. Our first task was linear measurements in which we took the measurements of our lecture text converting millimeters (mm) into centimeters (cm). The second task was converting volume measurements from milliliters (ml) to liters (L) by pouring water into a beaker and from the beaker into a graduated cylinder. Then we measured mass by weighing the beaker in grams (g) which was later converted to milligrams (mg). After getting the weight of the beaker we poured water into it and got its mass in grams. Therefore, used what we got from the water in the beaker mass and subtracted the amount we got from the empty beaker to get the mass for the water itself. Now for the pH measurement we used three different tests strips to test the different pH level of the liquids we were provided with. In our last experiment we did time measurement in where we timed our pulse rate at first for fifteen seconds per second and then for sixty seconds we did millisecond.

**Results:**

Linear Measurements-

|  |  |  |
| --- | --- | --- |
| 1. State the length of your lecture text: | 280 mm | 28 cm |
| 1. State the width of your lecture text: | 260 mm | 26 cm |
| 1. State the depth of your lecture text: | .5 mm | .05 cm |

Volume Measurements-

|  |  |  |
| --- | --- | --- |
| 1. Water in the beaker & state volume | 10 ml | .01 liters |
| 1. Water from the beaker into graduated cylinder & state the volume | 90 ml | .09 liters |

Mass Measurements-

|  |  |  |
| --- | --- | --- |
| 1. Beaker | 112,610 mg | 112.61 g |
| 1. Beaker w/ water | 201,440 mg | 201.44 g |
| 1. Water | 88,830 mg | 88.83 g |

pH Measurements-

|  |  |  |
| --- | --- | --- |
| Container “A” | Container “B” | Container “C” |
| 2 | 6 | 11 |
| Most acidic | Neutral | Basic | |

Time Measurements-

|  |  |
| --- | --- |
| Pulse rate after 15 secs | Pulse rate after 60 secs |
| 16 beats/seconds | 70 beats/minute |
| 64 beats/minute | 17.5 beats/ second |
|  | 17,500 beats/ millisecond |

**Discussion:** While working on the experiments I was glad we were provided with a worksheet on the metric system. It was easier for me to familiarize myself with the conversion of the data we collected with the worksheet. In the linear measurement we divided the number by 10 converting mm to cm. For the volume measurements it did take me a while to figure out how to convert if but after going back and forth with my lab partner as well as looking back on the worksheet I was able to figure out that we needed to divide our number by 1,000. Then for the mass measurement we get the mass measurement for the beaker and the beaker with water an subtract to get the water mass. As for the pH test strips, we ended up using the round dishes and laid the strips down while we pored the liquid on them.

**Conclusions:** At the end of all the experiments I was relieved since I haven’t done any type of experiments since chemistry, and I took that class like three years ago. I’m not much of a fan when it comes to experiments since I tend to overthink the whole process and doubt a lot of the choices I make even if the instructions are right in front of me. As for the conversion part it felt like it took me a while to get familiarize metric measurements. Overall I think this lab gave me an insight on what to expect with future labs.