Name : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **I cannot believe you still do not know this stuff Lab**

Purpose: To review the most important lab techniques on the Regents Exam

Pre-Lab Questions: Provide the reference table that can help you determine the following information:

1. Number of subatomic particles: \_\_\_
2. Electron configurations: \_\_\_
3. Atomic mass: \_\_\_\_
4. Calculating moles: \_\_\_
5. The molarity during a titration: \_\_\_
6. Calculating density: \_\_\_
7. Calculating percent error: \_\_\_
8. Determining functional groups: \_\_\_

Procedure: For all calculations, show work and provide proper significant figures and units.

**Station 1:** **Bright Line Spectra**

Turn on the van de graaff generator and carefully touch the light bulb to the top of the generator.

Observations: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Which subatomic particle is responsible for conducting electricity? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Explain in terms of energy and electrons what is occurring. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_s exam. om the air your answer.

Give a possible electron configuration for Boron in the excited state: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Station 2: Average Atomic Mass**

Determine the average atomic mass of the element Beanium. To do this, mass one of each bean and record. Then count the number of that bean and find its percent of the total beans. Finally calculate the average like the Regents exam does.

|  |  |  |
| --- | --- | --- |
|  | Isotope 1 | Isotope 2 |
| Mass |  |  |
| Percent abundance |  |  |

Show work to calculate the average mass here:

In terms of subatomic particles state the difference between isotopes. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Which isotope of carbon (C-12/C-14) is most abundant? Explain your answer. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Station 3: Moles**

Calculate the number of moles of the sample of aluminum. Show your work.

Calculate the mass of 0.500 moles sodium chloride. Mass it on balance and record your answer.

**Station 4: Titration**

A student began a titration with 1.10 ml of 1.0 M HCl(aq) and 2.35 ml of NaOH(aq). Record the final volume of each solution and then calculate the molarity of sodium hydroxide.

What is the function of the indicator phenolphthalein used in this titration? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

How would your answer have changed if Ca(OH)2 had been used instead of NaOH? Show calculations to support your answer.

**Station 5: Density**

Calculate the density of the aluminum cube. Show your work.

Calculate your percent error.

How would the density be affected if the cube was hollow? Be specific. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Station 6: Hydrate**

Two equal masses of copper (II) sulfate hydrate were measured out. One sample was hearted until after was driven off. The results are provided in the boats. Mass the hydrate, anhydride and boat, and record. Calculate the percent mass of water in the hydrate.

How did you know which was the hydrate and the anhydride? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

How would your percent of water in the hydrate be affected if the anhydride absorbed moisture from the air as it sat out during this lab? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Describe the direction of heat flow in order to produce this physical change. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Station 7: Bonding/Organic**

Using the molecular models, construct a model of ethanol and draw the structure.

Is this substance soluble in water? Explain in terms of polarity. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

How many electrons were shared between the oxygen and hydrogen atoms? \_\_\_\_

Post Lab Questions:

1. This lab was designed to review the most important lab techniques tested on the Regents exam. While completing this lab, which topics seemed the easiest? You can list the lab station(s). \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. After completing this lab, which topics do you still need to review in order to prepare for the Regents exam? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. Do you feel this lab was helpful in reviewing for the Regents Exam? Please elaborate. \_\_\_\_\_\_\_\_\_\_\_\_\_\_

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