CP CHEMISTRY MR. CANOVA

LAB: ELECTROCONDUCTIVITY (this is a typed up lab report)

Students: Please read the following information given below, and then come to class on your lab day with the following already prepared in your notebooks:

1) Date, 2) Partner, 3) Title, 4) Purpose, 5) Materials, 6) Safety, 7) Diagram, 8) Procedures/Observations, and 9) Data Table

The questions on the last page need to be printed out. These pages will be submitted along with the formal typed up lab report. The lab report is due one week after the completion of this lab. (Your next lab class).

Please read the paragraphs below. Using these paragraphs, write your procedures for this lab. Then, use your procedures to make your own data table in your notebooks.

Obtain a well reaction plate, a conductivity meter, dry samples of sodium chloride and sucrose, water, alcohol, distilled water, and a plastic toothpick.

The first test you will perform using the conductivity meter will be with dry sodium chloride and dry sucrose ($C_{12}H_{22}O_{11}$). Be sure not the carry one solid over to the second one. Record your observations on your data table. Next, add 10 drops of distilled water to an empty well, 10 drops of alcohol to another well, and 10 drops of tap water to a third well (see diagram). Test the conductivity of the 3 liquids using the conductivity meter and record your observations. Add 20 drops of distilled water to the first sample of sodium chloride and 20 drops to a sample of sucrose. Using the toothpick, stir each to dissolve the solids. Remember to rinse and dry the toothpick before going to the next solution. Please note, you should allow any solids to settle before testing each solution for conductivity. Once the solutions have been tested, record your observations (wash the electrodes with distilled water and dry them before going to the next solution). Finally, add 20 drops of alcohol to the two dry solids and repeat the same process that was performed when water was added to the dry solids.

Once you have collected your data, please come up and obtain your unknown. Place the unknown in one of the empty wells on your reaction plate. Remember to record the identity of your unknown in your data table.

Use the diagram below to help set up your well reaction plate.

NaCl ○	○	$C_{12}H_{22}O_{11}$ ○	Distilled water ○	Tap water ⬭
○	○	○	○	
NaCl ○	○	$C_{12}H_{22}O_{11}$ ○	Alcohol ○	

Remember this is a formal typed up lab REPORT to be submitted one week after the completion of the lab.

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LAB: ELECTROCONDUCTIVITY

Period _____ Name _____
Date _____ with _____
Due _____

Questions:

1. For the following, indicate yes if the conductivity meter lights up when placed in the substance, or no if the conductivity meter did not light up when placed in the substance.

a. solid sodium chloride:_____
b. solid sucrose:_____
c. distilled water:_____
d. alcohol:_____
e. tap water:_____
f. distilled water & sodium chloride:_____
g. distilled water & sucrose:_____
h. alcohol & sodium chloride:_____
i. alcohol & sucrose:_____
j. unknown:_____

2. Did any of the liquids conduct an electric current? If so, which one(s), and thoroughly explain why.

3. Did either of the water solutions conduct an electric current? If so, which one(s), and thoroughly explain why.

4. Did either of the alcohol solutions conduct an electric current? If so, which one(s), and thoroughly explain why.

5. Ionic compounds that conduct an electric current are called electrolytes.
   a. Which of the two solids must be an ionic compound? Why?

   b. What ions are found in this compound?

   c. Why do these ions conduct electricity when dissolved but not in the solid state? Explain thoroughly.

   d. Write a chemical equation to show what happens when this solid is dissolved in water:
   (i.e. $CA \rightarrow C^+ + A^-$)