WODSS SCIENCE
SCH 3UI

Name: _____

Date: _____

Classifying Compounds Using Physical Properties

Question: How do ionic and molecular (covalent) compounds compare on the basis of solubility, conductivity, state at room temperature, and melting point?

Prediction: From its chemical formula, predict whether each compound is ionic or molecular. **/1**

potassium iodide (KI):
sucrose ($C_{12}H_{22}O_{11}$):
calcium chloride ($CaCl_2$):
isopropyl alcohol (C_3H_8O):
sodium chloride (NaCl):
sodium bicarbonate ($NaHCO_3$):
olive oil ($C_{17}H_{20}O_5$):

Hypothesis: Explain your prediction. **/1**

Observations: Table 1: Physical Properties of Ionic and Covalent Compounds **/8**

Compound	Part 1: State at Room Temperature	Part 2: Solubility (dissolves / does not dissolve) • add a small amount to 10 mL of distilled water, stir to mix	Part 3: Conductivity (conducts electricity / does not conduct electricity) • use conductivity meter to test	Part 4: Melting Point (ºC)
potassium iodide (KI)				686
sodium chloride (NaCl)				801
sucrose ($C_{12}H_{22}O_{11}$)				185
sodium bicarbonate ($NaHCO_3$)				270
calcium chloride ($CaCl_2$)				772
olive oil ($C_{17}H_{20}O_5$)				-6
isopropyl alcohol (C_3H_8O)				-89

Discussion (2 marks each)**:** **/8**

1. Use your observations to classify the compounds into two categories.
2. Briefly summarize the physical properties of each category.
3. Are the physical properties that you studied in this investigation sufficient for classifying the compounds into two categories? What other physical properties could you investigate?
4. Suggest possible sources of error in the procedure. How could you modify the procedure to reduce these sources of error?