

- 1) Which solution in each set is the better conductor of electricity (electrolyte)? Justify your answer.
- 1.0 M KBr or 1.0 M CaCl<sub>2</sub>
  - 1.0 M NaCl or 1.0 M PCl<sub>3</sub>
  - 1.0 M Li<sub>2</sub>(CO<sub>3</sub>), 1.0 M NH<sub>3</sub>, or 1.0 M LiCl

- 2) Write the balanced chemical equation for the dissolving of aluminum nitrate in water.

Write balanced net ionic equations for the reactions in questions 3 through 13. Remember: compounds containing Group 1A ions, nitrate, and ammonium are always soluble.

- 3) Aqueous solutions of potassium chloride and silver nitrate are mixed.
- 4) A solution of lead (II) nitrate is added to a solution of sodium iodide.
- 5) A sodium hydroxide solution is mixed with an aluminum nitrate solution.
- 6) A solution of potassium carbonate is mixed with a solution of calcium chloride.
- 7) Aqueous solutions of magnesium sulfate and strontium chloride are mixed.
- 8) A solution of iron (II) nitrate is poured into a potassium sulfide solution.
- 9) Solutions of silver nitrate and sodium sulfide are combined.
- 10) Solutions of ammonium chloride and lead (II) nitrate are mixed.
- 11) A potassium hydroxide solution is mixed with a solution of zinc nitrate.
- 12) A solution of lead (II) nitrate is poured into a solution of sodium iodide.
- 13) Solutions of ammonium chloride and silver nitrate are mixed.
- 14) In a laboratory, students were given three beakers labelled A, B, and C. They were told that the three solutions were sodium sulfate, lead (II) nitrate, and potassium iodide. Their task was to figure out which solution corresponded to which label.
- When solutions A and B were mixed, a bright yellow precipitate formed. What is the chemical formula for the precipitate?

- b. When solutions A and C were mixed a white precipitate formed. What is the chemical formula for the precipitate?
- c. Identify solution A.
- d. Identify solution C.
- e. Identify solution B.

15) In a laboratory, students were given two unlabeled beakers and told that one of the beakers contained 1.0 g of solid  $\text{CaCO}_3$  and the other contained 1.0 g of solid  $\text{AgNO}_3$ . They were told to devise an experiment to identify which compound was which. A student did so by adding 50 mL of distilled water to each beaker. Describe the student's observations that allowed him to identify each compound.