Year 11 Chemistry Checkup NAME_____

Ionic Solubilities and Equations 2

1. Write the symbol and charge for the following ions:

(a) cadmium _____

(b) nitride _____

(c) silver _____

(d) bicarbonate _____

2. Write the following as formulae and indicate whether or not each will be soluble, partially soluble, or insoluble in water.

(a) copper phosphate _____

(b) ammonium sulphate _____

(c) potassium sulfide _____

(d) nickel iodide _____

(e) tin (II) nitrate _____

(f) mercury carbonate _____

3. An unknown ionic substance forms a precipitate with fluoride and hydroxide but not with chromate or sulphate. Deduce the cation(s) it is most likely to be, and give reasons. Assume that in this experiment partial solubility would be observed as a precipitate.

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4. For each reaction, write:
   (i) A chemical equation
   (ii) An ionic equation
   (iii) A balanced net ionic equation

   (a) zinc chloride solution plus sodium carbonate solution

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   (b) chromium nitrate solution plus ammonium hydroxide solution

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BONUS QUESTIONS

A) One unusual ion that exists is the triiodide ion, I_3^-. Explain whether this is a **monatomic** or **polyatomic** ion, and suggest why it is unusual, using NaI_3 as an example.

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B) Ionic substances dissolve in water by dissociation, whereas covalent substances dissolve by ionisation. Describe the processes of **dissociation** and **ionisation**, and give an example of each.

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