Chemistry 115 Name

Dr. Cary Willard

Quiz 7a (20 points) October 28, 2013

1. (10 points)Single replacement reactions – (Note that all metals will form a cation with a +2 charge if they react.)
   1. If a piece of nickel foil is placed into a solution of lead(II) nitrate (Pb(NO3)2), the nickel begins to dissolve and a precipitate begins to form on the bottom of the test tube. Write a balanced equation for the reaction that is taking place.

Ni(s) + Pb(NO3)2(aq) 🡪 Pb(s) + Ni(NO3)2(aq)

* 1. Which element is more active, Pb or Ni?

Ni

* 1. If a second piece of nickel foil is placed into a solution of calcium nitrate (Ca(NO3)2) no visible reaction takes place. Which element is more active, Ni or Ca?

Ca

Two test tubes were set up,

Test tube #1 - Pb metal in a solution of calcium nitrate

Test tube #2 - Ca metal in a solution of lead(II) nitrate.

* 1. Predict which test tube will show a reaction.

Test tube #2 will have a reaction.

* 1. Write a balanced chemical equation for this reaction.

Ca(s) + Pb(NO3)2(aq) 🡪 Pb(s) + Ca(NO3)2(aq)

1. (10 points) Double displacement reactions – Both of the reactions below will occur. Write the correctly balanced chemical equation for each and indicate what kind of evidence of reaction you would be likely to observe. Be sure to include state labels on your equations.
   1. H2SO4(aq) + K2CO3(aq) 🡪

H2SO4(aq) + K2CO3(aq) 🡪 K2SO4(aq) + H2CO3(aq)

🡪 K2SO4(aq) + H2O(l) + CO2(g)

* 1. Evidence of reaction

A gas will be formed. There should be bubbles.

* 1. Li3PO4(aq) + CrCl2(aq)

2 Li3PO4(aq) + 3 CrCl2(aq) 🡪 6 LiCl(aq) + Cr3(PO4)2(s)

* 1. Evidence of reaction

There will be a precipitate. You should see some solid on the bottom of the test tube.



Slightly ionized substances – H2O, HC2H3O2, HF, H2CO3, H2SO3, NH4OH, H2C2O4, H3PO4

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Quiz 7b (20 points) October 28, 2013

1. (10 points)Single replacement reactions – (Note that all metals will form a cation with a +2 charge if they react.)
   1. If a piece of tin foil is placed into a solution of mercury(II) nitrate (Hg(NO3)2), the tin begins to dissolve and a silver colored liquid begins to form on the bottom of the test tube. Write a balanced equation for the reaction that is taking place.

Sn(s) + Hg(NO3)2(aq) 🡪 Hg(l) + Sn(NO3)2(aq)

* 1. Which element is more active, Hg or Sn?

Sn

* 1. If a second piece of tin foil is placed into a solution of calcium nitrate (Ca(NO3)2) no visible reaction takes place. Which element is more active, Sn or Ca?

Ca

Two test tubes were set up,

Test tube #1 – Hg liquid in a solution of calcium nitrate

Test tube #2 - Ca metal in a solution of mercury(II) nitrate.

* 1. Predict which test tube will show a reaction.

Test tube #2 will have a reaction.

* 1. Write a balanced chemical equation for this reaction.

Ca(s) + Hg(NO3)2(aq) 🡪 Hg(l) + Ca(NO3)2(aq)

1. (10 points) Double displacement reactions – Both of the reactions below will occur. Write the correctly balanced chemical equation for each and indicate what kind of evidence of reaction you would be likely to observe. Be sure to include state labels on your equations.
   1. H2SO4(aq) + Li2SO3(aq) 🡪

H2SO4(aq) + Li2SO3(aq) 🡪 Li2SO4(aq) + H2SO3(aq)

🡪 Li2SO4(aq) + H2O(l) + SO2(g)

* 1. Evidence of reaction

A gas will be formed. There should be bubbles.

* 1. K3PO4(aq) + CuCl2(aq)

2 K3PO4(aq) + 3 CuCl2(aq) 🡪 6 KCl(aq) + Cu3(PO4)2(s)

* 1. Evidence of reaction

There will be a precipitate. You should see some solid on the bottom of the test tube.



Slightly ionized substances – H2O, HC2H3O2, HF, H2CO3, H2SO3, NH4OH, H2C2O4, H3PO4