**Review Package #4**

1. An aqueous solution of silver nitrate is mixed with an aqueous solution of ammonium carbonate and a precipitate is observed.

a) Write a ***balanced formula equation*** for this reaction: *(include all subscripts)*

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b) Write a ***balanced complete ionic equation*** for this reaction: *(include all subscripts)* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c) Write a ***balanced net ionic equation*** for this reaction: *(include all subscripts)* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

d) This type of reaction is a type of double replacement called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. An aqueous solution of sulphuric acid (H2SO­4) is mixed with an aqueous solution of aluminum hydroxide and a reaction occurs.

b) Write a ***balanced formula equation*** for this reaction: *(include all subscripts)*

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c) Write a ***balanced complete ionic equation*** for this reaction: *(include all subscripts)* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

d) Write a ***balanced net ionic equation*** for this reaction: *(include all subscripts)* (2 marks)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

e) This type of reaction is a special type of double replacement called \_\_\_\_\_\_\_\_\_

3. 25.0 mL of a solution of H2SO4 of unknown concentration is titrated with a standard solution made up of 0.345 M NaOH. The data table for the titration looks like the following:

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Trial 1** | **Trial 2** | **Trial 3** |
| *Initial NaOH burette reading (mL)* | 0.00 | 12.34 | 23.90 |
| *Final NaOH burette reading (mL)* | 12.34 | 23.90 | 35.24 |
| *Volume of NaOH used (mL)* |  |  |  |

a) Fill in the “Volume of NaOH used” for each trial in the table above.)

b) Calculate the “Best Average Volume” of NaOH used from the data (in mL).

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_mL

Express this volume of NaOH used in L: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_L

c) Write the ***balanced formula equation*** for the reaction taking place in this titration.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

d) From the information given, calculate the [H2SO4] in the original H2SO4  solution.

Show all of your work!

Answer: [H2SO4] = \_\_\_\_\_\_\_\_\_\_ M

4. A student adds 15.0 mL of water to a 25.0 mL sample of 0.80 M Li3PO4 solution.

a) Calculate the final [Li+]

b) Calculate the final [PO43-]

5. Calculate the mass of solid K2CO3 which must be added to 500.0 mL of water in order to

make a solution in which the [K+] is 3.0 M.

6. 60.0 mL of 0.45 M K3PO4 is mixed with 240.0 mL of 0.20 M K2SO3. Calculate the final

concentration of all three ions in the solution.

Answer: [PO43-] = \_\_\_\_\_\_\_\_ M [SO32-] = \_\_\_\_\_\_\_\_M [K+] = \_\_\_\_\_\_\_\_M