EASTERN UNIVERSITY, SRI LANKA
FIRST YEAR FIRST SEMESTER EXAMINATION IN SCIENCE-2012/2013
(Feb' 2014)
CH 151 QUANTITATIVE AND QUALITATIVE INORGANIC ANALYSIS

Time: Three Hours **Group 2**

1. You are provided with a mixture **A** containing two inorganic cations. Analysis the mixture **A** qualitatively and record your observations, inferences and conclusion. Carryout one confirmatory test for each identified cation.

   Hint: Assume the cations are present in Group II and Group V only.

2. A mixture **B** contains two inorganic anions. Perform the following tests and record your observations, inferences and conclusion. Carryout one confirmatory test for each identified anion.

   a) Add dil. H_2SO_4, warm and test for evolved gas

   b) Prepare Na_2CO_3 extract and use the extract to the following experiments.

   i. Add dil. HNO_3 and $AgNO_3$
   ii. Add dil. HNO_3 and $BaCl_2$
   iii. Add dil. HCl and H_2S
   iv. Boil with few drops of con. HCl and pass H_2S
   v. Add few drops of NaOH to the extract and then test with fresh dil. Sodium nitroprusside.
   vi. Boil with con. HNO_3 and ammonium molybdate
   vii. Acidify the Na_2CO_3 extract with dil. H_2SO_4 and add freshly prepared $FeSO_4$ and few drops of con. H_2SO_4.

3. You are provided with the following solutions.

   i. solutions contains CO_3^{2-} and OH^- (**X**)

   ii. 0.01M HCl solution (**Y**)

   iii. methyl red indicator

   iv. phenolphthalein indicator

Perform the following experiments and answer the questions listed below.

Procedure 1

Pipette out 10.0 ml of given **X** into a titration flask, add one drop methyl red as an indicator. Then titrate against given solution **Y**.

Procedure 2

Pipette out 10.0 ml of given **X** into a titration flask, add one drop phenolphthalein as an indicator. Then titrate against given solution **Y**.

Take **three** readings for each titration.

Questions:

1. Tabulate all your readings.
2. Write down balanced equations for all the reactions involved in the above experiments?
3. Calculate the percentage of CO_3^{2-} and OH^- in the solution?