



EASTERN UNIVERSITY, SRI LANKA

SECOND YEAR FIRST SEMESTER EXAMINATION IN SCIENCE-2021/2022

(MARCH/APRIL 2024)

CH2042: INORGANIC CHEMISTRY LABORATORY 1

Answer all questions

Time: 04 Hours

**GROUP 3**

Perform the following Experiments and answer the questions listed below.

*Experiment 1*

Pipette out 10.0 ml aqueous solution of  $ZnSO_4$  (0.01M) into a titration flask, add 2 ml of Buffer solution (pH 10) into it and titrate with EDTA using Eriochrome Black T as an indicator.

*Experiment 2*

Pipette out 10.0 ml aqueous solution of given Water sample into a titration flask, add 2 ml of Buffer solution (pH 10) into it and titrate with EDTA using Eriochrome Black T as an indicator.

Take two readings for each titration

Tabulate all Your readings.

Write down balanced equation for all the reaction involved in the above experiments .

Calculate the strength of EDTA.

Calculate the hardness of Water in ppm.

Contd

2. You are provided with the following samples.

- A. Sulphate solution
- B. Con.HCl
- C. 5 % BaCl<sub>2</sub>
- D. AgNO<sub>3</sub>

Pipette out 20 ml of solution A provided into a 400 ml beaker. Add 0.5 ml of B with stirring and dilute to 200 ml. Cover the beaker with clock glass. Heat the solution to boiling on steam bath. Add 12 ml of solution C drop wisely with stirring. Allow the precipitate to settle for two minutes. Then test the supernatant for complete precipitation by adding few drops of C. If a precipitate is formed, add slowly a further 3 ml of C, allow the precipitate to settle as before and test again. Repeat this procedure until an excess precipitating agent has been added. Keep the covered solution hot, but not boiling for an hour on a steam bath in order to complete precipitation. The volume of the solution should not be allowed to fall below 100 ml. If the clock glass covering the beaker is removed, the underside of the clock glass must be rinsed with water to the beaker by means of water from wash bottle. After, a clear supernatant should be obtained. Test the supernatant liquid with a drop of C solution for complete precipitation. Filter in a weighed sintered glass crucible, repeat the filtration, after testing for complete precipitation with little C solution. Wash the precipitate with warm water until the filtrate give no precipitate with a few drops of D. Dry the crucible along with the precipitate and cool in the desiccator, weigh accurately and repeat this procedure until constant weight is obtained.

- I. Carry out the experiment in duplicate
- II. Tabulate your readings
- III. Write all the balanced equations
- IV. Calculate the concentration of SO<sub>4</sub><sup>2-</sup>

3. A 26.23 mg sample of MgC<sub>2</sub>O<sub>4</sub>•H<sub>2</sub>O and inert materials is heated to constant weight at 1200 °C, leaving a residue weighing 20.98 mg. A sample of pure MgC<sub>2</sub>O<sub>4</sub>•H<sub>2</sub>O, when treated in the same fashion, undergoes a 69.08% change in its mass. Determine the weight percentage MgC<sub>2</sub>O<sub>4</sub>•H<sub>2</sub>O in the sample.

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