

BARNES SCHOOL, DEVLALI
HALF YEARLY EXAMINATION 2011-2012

CHEMISTRY PAPER- 2

Time : 3 Hrs

CLASS 12

Max Marks 30

INSTRUCTIONS

(Candidates are allowed additional 15mins for only reading the paper. They must not start writing during this time).

Question-1

You are provided with two solutions as follows:

A-1 is a solution prepared by dissolving 19.8g/L of hydrated ferrous ammonium sulphate solution, $\text{FeSO}_4(\text{NH}_4)_2\text{SO}_4 \cdot x\text{H}_2\text{O}$ (Mohr salt) and A-2 is a solution of .05 M potassium manganate(VII).

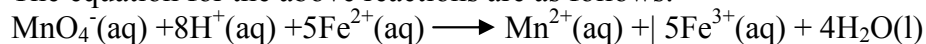
PROCEDURE: Rinse and fill the burette with the solution A-2(KMnO_4). Pipette out 25 ml of A-1(Mohr salt) into a clean conical flask. To this add 20ml of dilute sulphuric acid(A-3), specially provided for titration.

Titrate the solution with A-2 till one drop of this gives a light permanent pink colour to the solution in the conical flask. Repeat the experiment to get atleast two concordant readings.

Tabulate your readings.

State the titre value you intend to use in your calculations; Show the titre value to the examiner.

The equation for the above reactions are as follows:



The relative atomic masses are- K=39, F=56, N=14, S=32, H=1, O=16, Mn=55

Calculate the following:

- (i) The molarity of hydrated ferrous ammonium sulphate solution(Mohr salt) [6]
- (ii) The number of molecules of water of crystallization in Mohr salt.

Question-2: Identify two anions and two cations from the given inorganic mixture B-1. While testing for anions mention the following: [8]

- i) The preparation of the solution/soda extract
- ii) The confirmatory tests for the anions.

While testing for cations you must state:

- i) The preparation of original solution for group analysis
- ii) The formal group analysis with pertinent group reagent.
- iii) The confirmatory tests for each cation.

Question-3: Solution C-1 is an organic compound. Carry out the following experiments with separate portions of the solution C-1. Record all changes such as, the change in colour, smell, colour of precipitate, etc. [6]

- i) Take 1cm^3 of C-1 and add 1cm^3 of Tollen's reagent. Warm over water bath for 5 min.
- ii) Take 2cm^3 of C-1 solution. To it add 1cm^3 of the Fehling's solution. Warm the contents of water bath for about 5 min.
- iii) Take 1cm^3 of Schiff's reagent and to it drop 2 to 3 drops of C-1.
- iv) Take 1cm^3 of C-1 solution in a clean test tube. To it add about 2cm^3 of freshly prepared strong solution of pyrogallol and about 2cm^3 of strong HCl.
- v) Take 2cm^3 of C-1 solution in a clean test tube. Add 1cm^3 of 1% phenyl hydrazine solution and 1cm^3 of freshly prepared potassium ferricyanide solution. To it further add excess of NaOH.
- vi) Take 1cm^3 of C-1. To it add a crystal of resorcinol and shake it well, then to it add slowly about 1cm^3 of conc. H_2SO_4 along the sides of test tube.

Project work
Practical file

[7]
[3]