Unique Paper Code: **42173923/ 32173902**

Name of the paper: **Basic Analytical Chemistry**

Name of the Course: **B.Sc. (H) / B.Sc.(Prog.)**

Semester: **III / V**

Duration: 3 hour **Maximum Marks: 38**

Attempt *two* questions in all

1. (a) Discuss the composition of soil. Give experimental details to check the pH of soil.
(b) Why the combination of hydroxide and bicarbonate ions is not recorded in any alkaline water sample?
(c) Explain the terms accuracy and precision in chemical analysis. Give suitable examples.
(d) Give the stationary phase and mobile phase in paper chromatography. Define R_f value.

(5,5,5,4)

2. (a) Discuss the role of any two analytical instrumental techniques for sample analysis.

(b) How will you determine the dissolved oxygen present in any water sample? Explain in detail.

(c) Explain the term significant numbers. How many significant figures does each of the following numbers have?

(i) 1.265 x 0.1207 x 40

(ii) 9.550×10^4

(d) Give the examples of two metallochromic indicators along with its structure and pH range.

(5,5,5,4)

3. (a) Find out the average deviation and the average relative deviation of the following set of analytical results 17.12, 16.75 & 16.71.

(b) What is the action of cation exchange resin? Explain its importance in chromatography with example.

(c) Differentiate between hard water and soft water. Suggest a method to remove hardness of water.

(d) Explain masking and demasking agents with example.

(5,5,5,4)

4. (a) Discuss the role of phenolphthalein in trap cases.
(b) Explain the term sampling. What is its importance in chemical analysis?

(c) Why are chelating ligands preferred over monodentate ligands?

(d) Discuss various parameters to be checked for the purity of water.

(5,5,5,4)