

**B.Sc. 3rd Semester (Honours) Examination, 2020-2021**

**CHEMISTRY**

**Course ID: 31415**

**Course Code: SHCHE/305/SEC-1**

Course Title: Basic Analytical Chemistry

**Time: 2 Hours**

**Full Marks: 40**

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words  
as far as practicable.*

1. Answer *any five* questions : 5×2 = 10
- (a) Give one example for each of artificial colouring agent and natural colouring agent.
  - (b) Write two sources of systematic error.
  - (c) Differentiate between eluent and effluent.
  - (d) Write down the principle of chromatographic process.
  - (e) What do you mean by ion exchange capacity?
  - (f) What do you mean by Nutritional value of foods?
  - (g) Define accuracy and precision.
  - (h) Mention major components of soil.
2. Answer *any four* questions: 4×5 = 20
- a) Briefly discuss the procedure for the determination of iron in vitamin tablets by Spectrophotometric method.
  - b) What are the disadvantages of thin layer chromatography (TLC)? Write two importance of TLC?
  - c) Briefly describe any one water purification method.
  - d) Write the fundamental requirements of a useful resin?
  - e) How do you estimate calcium and magnesium ions from soil by complexometric titration?
  - f) How do you determine the ion exchange capacity of a cation exchange resin?

3. Answer *any one* question:

1×10 = 10

(a) (i) What is the role of HCl in ether extraction of Fe(III) from aqueous solution?

(ii) Perform the operations with correct significant figure:  $(0.69 \times 1.0042) + 2.30125$

(ii) Can you minimize systematic error? If yes, how?

(iii) State the major constituents of deodorants.

4+(1+3)+2 = 10

(b) (i) Discuss the process for determination of Dissolved Oxygen by Winkler method.

(ii) How do you identify adulterants in coffee powder, turmeric powder and chilli powder?

(iii) Name any two metal ion indicators.

5+3+2 = 10