



B. Sc. 1st Semester Examination, 2023

Chemistry (SEC)

Basic Analytical Chemistry

Time: $1\frac{1}{2}$ hours

Full Marks : 30

1. Answer the following questions : $1 \times 5 = 5$

(a) Number of significant figures in 1.020 is

(i) 2

(ii) 3

(iii) 4

(iv) 1

(b) The mathematical definition of P^H is

(c) Carrots help to prevent

(d) What is commonly used as adsorbent in Column Chromatography ?

(e) Write the full form of HPLC.

2. Answer *any five* of the following questions : $2 \times 5 = 10$

(a) Define accuracy and precision.

(b) What is soil composed of ?

(c) What is hard water and its disadvantages.

(d) What are food preservatives ? Write the name of the two techniques for food preservation.

(e) What is chromatography and what is its principle.

(f) What do you understand by nutrition values of food ?

Write the nutritional value of egg yolks.

(2)

(g) What is the principle of ion exchange chromatography.

(h) Draw the structure of phenolphthalein in acidic and basic condition.

(i) What are the sources of dissolved oxygen in water.

(j) What are the steps of quantitative analysis.

3. Answer *any three* of the following : $3 \times 5 = 15$

(a) What are the different types of errors ? Explain stating their possible errors.

(b) Describe the steps of measuring P^H of a soil sample.

(c) What are the characteristics of drinkable water ?

(d) How can you separate a mixture of metal ion (e.g. containing Fe^{3+} and Al^{3+}) by using paper chromatography.

(e) Explain the term food adulteration. How many types of adulterants are there ? Write the name of the adulterant and disease caused by it in any two of the food products-

(i) Turmeric powder (ii) Ghee (iii) Fish

(f) Explain the two types of ion exchanger with example.