

GUJARAT TECHNOLOGICAL UNIVERSITY
BACHELOR OF ENGINEERING – SEMESTER 3 – EXAMINATION – SUMMER 2026

Subject Code: 3131305

Date: 17/06/2026

Subject Name: Environmental Chemistry-I

Time: 02:30 PM TO 05:00 PM

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

- Q.1** (a) Explain the following terms: Molarity, Normality, Molality 03
(b) Differentiate between Volumetric and Gravimetric analysis. 04
(c) Write a Short note on working of pH meter with neat sketch. 07
- Q.2** (a) Differentiate between accuracy and precision. 03
(b) Enlist the types of sampling techniques. Explain any one in detail. 04
(c) Explain the laboratory procedure for measurement of alkalinity of water sample. 07
- OR
- Q.2** (c) Write down a laboratory procedure for measurement of Chloride from water sample. 07
- Q.3** (a) Discuss the problems will arise if standard method is not followed for analysis. 03
(b) Classify the solids present in the water and wastewater sample with help of flow chart. 04
(c) Write down the methods for making 0.020 N H_2SO_4 solution. 07
- OR
- Q.3** (a) Explain the principle of conductivity and its measurement. 03
(b) Write down the methods for determination of settleable solids from water sample. 04
(c) Define Hardness as water quality parameter and describe the source of hardness in ground water. 07
- Q.4** (a) Discuss the importance of familiarization of Glassware in analytical laboratory. 03
(b) Write down the Dalton's law of partial pressure and Henry's Law. 04
(c) Explain the principle of the Ultraviolet Spectroscopy. 07
- OR
- Q.4** (a) Explain the significance of calibration of instrument in analytical chemistry. 03
(b) Define the following terms: (i) Physical Chemistry, (ii) Organic Chemistry, (iii) Equilibrium Chemistry and (iv) Nuclear Chemistry. 04
(c) Calculate hydrogen ion concentration of following solution: (a) 3 pH (b) 6 pH (c) 11 pH (d) 13 pH 07
- Q.5** (a) Explain the significance of measurement of sulfates from water and wastewater. 03
(b) Differentiate between distilled water and de-mineralized water. 04
(c) Explain Reverse Osmosis process with its advantages and disadvantages. 07
- OR
- Q.5** (a) Explain Desiccation and Drying. 03
(b) Explain the application of alkalinity data. 04

- (c) Write down the step by step procedure for measurement of the Calcium hardness from the given sample.

07
