

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER– III (New) EXAMINATION – WINTER 2019****Subject Code: 2131301****Date: 28/11/2019****Subject Name: Environmental Sciences 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.

- Q.1** (a) Highlight the use of: (i) conical flask (ii) burette (iii) desiccator. **03**
(b) What is the need of calibration of instruments? **04**
(c) Explain the method of determination alkalinity of water. **07**

- Q.2** (a) What do you mean by the term distilled water? Write a note on a method for preparation of distilled water. **03**
(b) Explain the terms valency and oxidation state. **04**
(c) Explain the working principle of turbidity meter. Explain this with the help of diagram. **07**

OR

- (c) Explain why standard methods are necessary in environmental engineering filed for analysis of water and wastewater? **07**
- Q.3** (a) Write a note on spectrophotometer. **03**
(b) Write the application of following instruments: **04**
1. BOD incubator
2. COD digester
3. High volume air sample
4. Magnetic stirrer
(c) Explain the method of determination of total solids, total dissolved solids and total suspended solids in water. **07**

OR

- Q.3** (a) Highlight the significance of total dissolved solids in water and wastewater. **03**
(b) Define following terms: Molality, Morality, normality, Atomic weight **04**
(c) Define pH. Explain procedure of calibrating pH meter. **07**
- Q.4** (a) Write a note on primary standards. **03**
(b) Highlight the significance of sulfate in the water and wastewater. **04**
(c) Write a note on cleaning procedure of glassware in laboratory. **07**

OR

- Q.4** (a) What is the importance of standardizing the chemicals? **03**
(b) Explain Oxidation and Reduction with suitable example **04**
(c) Write a note on gravimetric analysis. **07**
- Q.5** (a) Highlight the significance of pH in water and wastewater. **03**
(b) Explain in brief atomic emission spectroscopy. **04**
(c) Explain procedure of analysis of chlorides in water. **07**

OR

- Q.5** (a) State Dalton's law and Henry's law. **03**
(b) Enlist explain in short all types of hardness in water. **04**
(c) Write the procedure of determination of hardness in water. **07**
