

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-IV (NEW) EXAMINATION – SUMMER 2022****Subject Code:3141309****Date:27-06-2022****Subject Name:Fundamentals of Wastewater Quality****Time:10:30 AM TO 01:00 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) State and explain Le Chatelier's principle. **03**
(b) Explain the significance of different types of acidity present in wastewater. **04**
(c) Explain standard procedure of COD determination. **07**

- Q.2** (a) What is isomerism? Explain with example. **03**
(b) Explain phenomena of Common Ion effect with suitable examples. **04**
(c) Explain modified Winkler method for DO determination. **07**

OR

- (c) Identify the role of carbohydrates in higher animals. Explain the mechanism by which carbohydrates are converted to simple sugar with equations. **07**

- Q.3** (a) Explain the principle of dialysis with neat sketch. **03**
(b) Differentiate between organic compounds and inorganic compounds. (Give at least two points and example) **04**
(c) Classify the types of alcohols and explain each with example. **07**

OR

- Q.3** (a) Explain the terms: (i) emulsion (ii) smoke (iii) smog. **03**
(b) Explain the terms: Extracellular enzymes and intracellular enzymes. Identify the factors that affect the performance of enzyme activity in biochemical reaction. **04**
(c) Explain general properties of Colloids. **07**

- Q.4** (a) Explain briefly Amphoteric hydroxides. **03**
(b) List out the characteristics of pesticides. **04**
(c) Identify functional group is associated with Aldehyde, Ketone and Alcohol. Explain the nomenclature of each with example. **07**

OR

- Q.4** (a) Enlist different chemical reactions by which saturated hydrocarbons are formed. Explain any one with example. **03**
(b) Explain process to produce ethers. Highlight its application. **04**
(c) Explain Aliphatic and Aromatic compounds with examples. **07**

- Q.5** (a) Summarize significance of volatile acids in anaerobic treatment. **03**
(b) Explain about the significance of nitrogen species for aquatic life and aquatic bodies. **04**
(c) Explain the standard procedure to examine the sulphate concentration in wastewater sample. **07**

OR

- Q.5** (a) Explain the procedure of DO fixation in wastewater sample at site. **03**
(b) Find out theoretical COD of **04**
i. 500mg/L of Ethanol

- ii. 100mg/L of Phenol
- (c) Explain the any one standard procedure of determination of oil and grease present in wastewater.

07
