

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER– IV(NEW) EXAMINATION – SUMMER 2023

Subject Code:3141309**Date:11-07-2023****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.

MARKS

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| Q.1 | (a) What is a Chemical buffer? | 03 |
| | (b) What is Osmosis and Reverse Osmosis? | 04 |
| | (c) Write down the experimental process for the measurement of the acidity present in the wastewater. | 07 |
| | | |
| Q.2 | (a) Differentiate between BOD and COD. | 03 |
| | (b) How dilution water for BOD test is prepared in laboratory? | 04 |
| | (c) Write down the experimental process for the measurement of the Dissolved oxygen present in the wastewater. | 07 |
| | OR | |
| | (c) Write down the experimental process for the measurement of the chemical oxygen demand (COD) present in the wastewater. | 07 |
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| Q.3 | (a) Explain application of Adsorption in the wastewater treatment. | 03 |
| | (b) Explain Dialysis process with sketch. | 04 |
| | (c) Classify the Binary Mixtures and explain each class. | 07 |
| | OR | |
| Q.3 | (a) How colloids are significant environment? | 03 |
| | (b) State Hardy Schulze Law and its importance in wastewater treatment. | 04 |
| | (c) Derive the Equation for the substrate remaining after nth solvent extraction. | 07 |
| | | |
| Q.4 | (a) Give functional group and characteristics of Alcohol, Aldehydes and Ketones. | 03 |
| | (b) How Common Ion effect important in wastewater treatment? | 04 |
| | (c) Explain Ionization of Acids with examples. | 07 |
| | OR | |
| Q.4 | (a) Draw the structure of Furfural, Pyrrole and Pyridine. | 03 |
| | (b) Explain kinetic approach of Chemical Equilibrium of endothermic process when temperature is increase. | 04 |
| | (c) Explain Solubility products with suitable examples. | 07 |
| | | |
| Q.5 | (a) Give the difference between organic compounds and inorganic compounds. | 03 |
| | (b) Write a short note on Carbohydrates | 04 |
| | (c) Write a short note on biodegradation of organic compounds. | 07 |
| | OR | |
| Q.5 | (a) Give the difference between Fats and Wax. | 03 |
| | (b) Write a short note on Polyhydroxy Alcohols | 04 |
| | (c) Explain about the Fate of Organics. | 07 |
