

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-V (NEW) EXAMINATION – WINTER 2021****Subject Code:3151303****Date:01/01/2022****Subject Name:Physico-chemical Treatment Technology****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.

		<b>MARKS</b>
<b>Q.1</b>	(a) Draw only the neat sketch of water treatment scheme	<b>03</b>
	(b) Define the components of wastewater flows	<b>04</b>
	(c) Explain types of settling in detail	<b>07</b>
<b>Q.2</b>	(a) Explain the purpose of providing Grit Chambers	<b>03</b>
	(b) Show the definition sketch for types of screens used in wastewater treatment	<b>04</b>
	(c) Explain in detail: Tube settlers.	<b>07</b>
<b>OR</b>		
	(c) Classify the types of sedimentation tank. With the help of a neat sketch show flow patterns.	<b>07</b>
<b>Q.3</b>	(a) Enlist the various types of flocculators used.	<b>03</b>
	(b) Describe in brief: Coagulant aid	<b>04</b>
	(c) Write the important characteristics of ideal disinfectant	<b>07</b>
<b>OR</b>		
<b>Q.3</b>	(a) Enlist the Filter Appurtenances	<b>03</b>
	(b) Discuss in brief: Mechanism of flocculation	<b>04</b>
	(c) List the advantages and disadvantages of using various inorganic coagulants.	<b>07</b>
<b>Q.4</b>	(a) Draw only the schematic diagram of low rate digester	<b>03</b>
	(b) Show the advantages of using rotary vacuum drum filter	<b>04</b>
	(c) Explain the factors affecting disinfection by Chlorination	<b>07</b>
<b>OR</b>		
<b>Q.4</b>	(a) Draw only the schematic diagram of high rate digester	<b>03</b>
	(b) Summarize the disadvantages of using rotary vacuum drum filter.	<b>04</b>
	(c) Discuss the objectives of Disinfection	<b>07</b>
<b>Q.5</b>	(a) Show major sources of sludge	<b>03</b>
	(b) Categorize methods for sludge conditioning and Explain anyone in brief	<b>04</b>
	(c) Describe the characteristics of ideal filter medium	<b>07</b>
<b>OR</b>		
<b>Q.5</b>	(a) List the advantages of aerobic digestion over anaerobic digestion	<b>03</b>
	(b) Explain design of sludge drying beds	<b>04</b>
	(c) Explain the factors affecting flocculation	<b>07</b>

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