

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (NEW) EXAMINATION – WINTER 2018****Subject Code:2153509****Date:04/12/2018****Subject Name:Liquid Effluent Treatment-I****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.

		MARKS
Q.1	(a) Discuss the factors on which design aspects of sedimentation tank depends.	03
	(b) With a help of a neat sketch explain microbial growth patten curve.	04
	(c) Enlist different water borne diseases and explain its preventive measures in detail.	07
Q.2	(a) Define the following:	03
	1. Discrete particle	
	2. Hydraulic subsidence	
	3. Screens	
	(b) With a help of a neat sketch explain the working of activated sludge process.	04
	(c) Classify Screens based on their openings. Explain Fine screens in detail.	07
	OR	
	(c) Explain with a neat sketch wet feeding of coagulants.	07
Q.3	(a) Explain notation in each equation with their units:	03
	1. Krishmer's equation to calculate head loss through a bar rack	
	2. Head loss through fine screens	
	3. Head loss through partially cleaned bar screen	
	(b) Enlist different types of settling under sedimentation.	04
	(c) Enlist different types of grit chambers and explain any one with a neat sketch.	07
	OR	
Q.3	(a) Draw a neat sketch of coagulation tank.	03
	(b) Explain the mechanism of Reverse osmosis with its advantages.	04
	(c) Enlist different types of equalization and explain them in brief.	07
Q.4	(a) Differentiate Domestic wastewater and Industrial wastewater.	03
	(b) Explain dry feeding of coagulants in brief.	04
	(c) With the help of a neat sketch explain the locations of equalization tank.	07
	OR	
Q.4	(a) Explain the limitations of BOD test.	03
	(b) Explain the working or rotating biological contactor with its advantages.	04
	(c) Write a note in variations in wastewater flow rates.	07
Q.5	(a) Differentiate: Load based standards & Concentration based standards.	03
	(b) Discuss design steps to calculate volume of equalization tank.	04
	(c) Define neutralization. Enlist methods to achieve neutralization. Explain any two in brief.	07

- Q.5** (a) Explain the purpose of screening operation? **03**
(b) Enlist the advantages of Ultrafiltration and Microfiltration. **04**
(c) Enlist different types of sedimentation tanks and explain Circular **07**
sedimentation tank in detail with a neat sketch.

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