

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VI(NEW) – EXAMINATION – SUMMER 2019
Subject Code:2163509
Date:18/05/2019
Subject Name:Liquid Effluent Treatment – II
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) Explain in brief different types of aerators used in wastewater treatment systems.	03
	(b) Explain hopper bottom sedimentation tank with its figure.	04
	(c) List out at least four point of difference between suspended growth process & Attached growth process.	07
Q.2	(a) Discuss the impacts of high levels of turbidity in wastewater.	03
	(b) Explain different types of settling under sedimentation tank.	04
	(c) Explain in detail dry feeding of coagulants.	07
	OR	
	(c) Explain steps to design a square type tube settler.	07
Q.3	(a) For a circular tank with diameter of 16 m, determine the weir loading rate for a wastewater flow rate of 8 MLD.	03
	(b) Explain different phase of Microbial growth pattern curve with its figure.	04
	(c) Design an oil and grease trap to remove 190 mg/l of oil and grease from a flow of 62000 m ³ /d of domestic wastewater.	07
	OR	
Q.3	(a) A floating stick travels a distance of 15 m in 30 seconds in a reactor tank having 2 m width and 1.5 m depth. Determine the flow and flow through velocity.	03
	(b) List out any two neutralizing agents used to neutralize Acidic waste. Also explain Sodium carbonate treatment for neutralizing acidic waste.	04
	(c) Explain steps for designing a flocculator.	07
Q.4	(a) Explain working of Rotating Biological Contactor in brief.	03
	(b) Find the terminal settling velocity of a spherical particle with diameter 0.05mm of specific gravity 2.65 settling through water having kinematic viscosity $1.004 \times 10^{-6} \text{ m}^2/\text{sec}$.	04
	(c) Discuss the importance of Equalization tank. Explain in the line and off the line equalization tank.	07
	OR	
Q.4	(a) Define: WOR, SOR, Detention time	03
	(b) Draw a neat figure of coagulation tank.	04
	(c) What do you mean by grit particles? Explain Aerated grit chamber in detail.	07
Q.5	(a) Discuss harmful impacts of color in wastewater treatment.	03
	(b) Explain Variations in wastewater flow rate.	04
	(c) Draw outline of effluent treatment plant and explain the importance of each unit in short.	07

- Q.5** (a) Is trickling filter an aerobic or anaerobic process? Explain in brief. **03**
- (b) Explain the following: **04**
Aerobic Process, Anaerobic Process, Facultative Process, Anoxic Process.
- (c) Classify screens on the basis of their size of opening. Explain reciprocating rake screens with neat sketch. **07**

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