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GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VI (OLD) - EXAMINATION – SUMMER 2018

Subject Code:161304   **Date:03/05/2018**
Subject Name:Biological Process for Wastewater Treatment
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.

Q.1	**(a)**	Write down the experimental procedure to find the reaeration constant in the Laboratory.	**07**
	(b)	Draw the BOD progression curve and explain the different phases of the Same.	**07**
Q.2	**(a)**	Highlight the importance of BOD for environmental engineers & explain the factors affecting the BOD test.	**07**
	(b)	Derive the relationship to find the amount of methane per gram of COD.	**07**

OR

	(b)	Explain biochemistry of carbohydrates.	**07**
Q.3	**(a)**	Explain the mechanism by which substrate removal takes place in an attached Growth process.	**07**
	(b)	Enlist unit operations and processes used to remove constituents found in Wastewater.	**07**

OR

Q.3	**(a)**	Differentiate between; 1. Suspended Growth Process 2. Attached Growth Process.	**07**
	(b)	Describe in brief classification of biological treatment processes.	**07**
Q.4	**(a)**	With the help of a neat sketch explain working of rotating biological contactor.	**07**
	(b)	Write a short note on Root Zone Treatment.	**07**

OR

Q.4	**(a)**	Explain with a neat sketch the working of a percolating filter (trickling Filter). Also explain on which principle it works.	**07**
	(b)	Explain in detail Anaerobic Sludge Digestion.	**07**
Q.5	**(a)**	Discuss the fundamental considerations in the application of natural treatment Systems.	**07**
	(b)	Differentiate between oxidation ditch & oxidation pond.	**07**

OR

Q.5	**(a)**	Write down the mass balance for CFSTR without recycle and hence Derive the equation for finding bio kinetic constant.	**07**
	(b)	Enlist and explain the special problems of waste water treatment specific to small communities.	**07**

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