Seat No.: _____ Enrollment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME – SEMESTER– II – EXAMINATION – WINTER • 2014

Subject Code: 1721701 **Date: 02-12-2014**

Subject Name: principle of Waste water Treatment

Time: 02:30 am - 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.**

Q.1	**(a)**	What do you understand by the biological examination of water? Explain its necessity and describe the methods of aeration in treatment of water.	**07**
	(b)	With a neat diagram explain various units of water supply scheme.	**07**
Q.2	**(a)**	Draw a neat sketch showing the general layout of rapid sand filter (gravity type) and explain its working. How is the washing done of such a filter?	**07**
	(b)	Enlist potable water standards and wastewater effluent disposal standards.	**07**
		OR	
	(b)	Explain importance of aeration in water treatment. Also describe the various methods of aeration for water treatment.	**07**
Q.3	**(a)**	Define coagulation and flocculation. Enlist various coagulants and discuss their merits and demerits.	**07**
	(b)	Why is disinfection necessary? What are the requirements of a good disinfectant?	**07**
		OR	
Q.3	**(a)**	Distinguish between Slow sand filters and Rapid sand filters	**07**
	(b)	Draw the sketch of conventional trickling filter and discuss the process of formation of biological slime layer in it	**07**
Q.4	**(a)**	What are biological unit processes? Explain its importance in wastewater treatment.	**07**
	(b)	Write short note on Rotating Biological Contactor.	**07**
		OR	
Q.4	**(a)**	Discuss the factors affecting the sludge digestion process.	**07**
	(b)	Write a short note on Microfiltration and Nanofilteration.	**07**
Q.5	**(a)**	With a neat diagram explain Activated Sludge Process.	**07**
	(b)	Enlist various membrane processes and explain any one in detail.	**07**
		OR	
Q.5	**(a)**	With a neat schematic diagram explain wastewater treatment process.	**07**
	(b)	Write a shortnote on tertiary treatment processes for water and wastewater treatment.	**07**

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