Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME SEMESTER – I EXAMINATION – SUMMER 2017

Subject Code: 2711707 **Date:10/05/2017**

Subject Name: Water and Wastewater Technologies

Time:02:30 p.m. to 05:00 p.m. **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 physical, chemical and biological parameters of water? Explain in Detail.	**07**
	(b)	What do you understand by water quality requirement? Explain. Enlist Indian standards for drinking water with its one significance.	**07**
Q.2	**(a)**	Write a short note on (1) Wastewater effluent Standards (2) Water quality indices	**07**
	(b)	Write a short note on physical and chemical processes for water treatment	**07**
		OR	
	(b)	Write a short note on biological processes for water treatment.	**07**
Q.3	**(a)**	Draw a neat layout of water treatment plant. Label all the units and write the function of every unit.	**07**
	(b)	Draw a neat sketch and explain working of Rapid Sand Filters.	**07**
		OR	
Q.3	**(a)**	Explain importance of aeration in water treatment and describe various methods of aeration.	**07**
	(b)	Explain granular media filteration. Also explain mechanism of filteration and modes of operation.	**07**
Q.4	**(a)**	Explain in detail factors affecting disinfection and also in short various methods of disinfection.	**07**
	(b)	With a neat diagram explain Activated sludge process and explain its operational problems.	**07**
		OR	
Q.4	**(a)**	Differentiate between: (1) Coagulation and Flocculation (2) Attached Growth and Suspended Growth.	**07**
	(b)	Explain in brief sludge handling. Explain various sludge treatment methods.	**07**
Q.5	**(a)**	With neat sketch explain working of Trickling Filter	**07**
	(b)	With neat sketch explain Rotating Biological Contactor	**07**
		OR	
Q.5	**(a)**	Write a short note on (1) Ion Exchange (2) Reverse Osmosis	**07**
	(b)	Write a short note on (1) Ozonation (2) Clariflocculation	**07**

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