

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2018****Subject Code: 2173513****Date: 03/12/2018****Subject Name: Newer waste water treatment systems****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 characteristics of Membrane Process.	03
	(b) Explain in detail mechanism of disinfection.	04
	(c) Define the following:	07
	a. Sewage	
	b. Putrescible Decay	
	c. Standards	
	d. Impounded Reservoir	
	e. Sewerage	
	f. Invert	
	g. Advanced Oxidation Process	
Q.2	(a) Is Ion Exchange applied for removal of Heavy Metals? Justify the same	03
	(b) Explain in detail method to Design of sewer.	04
	(c) Explain in detail all the technologies to produce Hydroxyl Radical.	07
	OR	
	(c) Explain in detail Softening Process.	07
Q.3	(a) Describe in brief Dissolved Air Floatation.	03
	(b) Describe in brief Hydrodynamic Cavitation.	04
	(c) Explain in detail all methods of Neutralization.	07
	OR	
Q.3	(a) Explain Primary Treatment with a neat flow diagram.	03
	(b) What is the difference between unit operation and unit process.	04
	(c) Explain in detail Activated Sludge Process with its Removal Mechanism.	07
Q.4	(a) What are Chemical and Physical Agents of Disinfection.	03
	(b) Describe in brief Fenton Process.	04
	(c) Explain in detail Colloidal Stability with a neat diagram.	07
	OR	
Q.4	(a) Explain Rapid Sand Filter and Slow Sand Filter.	03
	(b) What are the factors affecting Adsorption Process.	04
	(c) Design the section of a combined circular sewer from the following data:	07
	Area to be served = 150 hectares	
	Population of the locality = 50,000	
	Max. Permissible velocity = 3.2 m/sec	
	Time of entry = 5 minutes	
	Time of flow = 20 minutes	
	Rate of water supply = 270 litres/day/capita	
	Impermeability factor = 0.45	

- Q.5 (a) Describe Rectangular Sedimentation Tank. 03
(b) Explain concept of removal of pollutants through Anaerobic Process. 04
(c) Explain in detail Nanofiltration and Electrodialysis. 07

OR

- Q.5 (a) Explain Application of Ion Exchange for Nitrogen Removal. 03
(b) Explain Aerated and Vortex Grit Chamber 04
(c) There is difference between Advanced Wastewater Treatment and Tertiary Treatment. Justify the Statement. 07

www.FirstRanker.com