Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI • EXAMINATION – WINTER • 2014

Subject Code: 160604 **Date: 05-12-2014**

Subject Name: Water and Waste Water Engineering

Time: 02:30 pm - 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)**	Explain River intake	**07**
	(b)	Draw schematic layout plan of water treatment plant and Shaw different units	**07**
Q.2	**(a)**	Describe rising main and pumping station . Also describe design steps	**07**
	(b)	Explain design criteria for rapid sand filter	**07**
		OR	
	(b)	The purification plant has estimated 11 mld Design the dimension of suitable plain sedimentation tank	**07**
Q.3	**(a)**	Explain clariflocculator with sketch	**07**
	(b)	Describe mass curve method to find capacity of elevated service reservoir	**07**
		OR	
Q.3	**(a)**	Explain methods of disinfections	**07**
	(b)	Design sludge digestion tank with following data (i) Average flow of sewage = 50 x 10^6 litres/day (ii) Total suspended solids = 300 mg/l (iii) Volatile suspended solids = 200 mg/l (iv) Moisture content =85% . Assume other data	**07**
Q.4	**(a)**	Explain trickling filter with sketch . discuss design parameters	**07**
	(b)	Explain Activated sludge digestion process	**07**
		OR	
Q.4	**(a)**	Explain design procedure of septic tank	**07**
	(b)	Explain aerobic attached growth treatment process	**07**
Q.5	**(a)**	Explain sludge drying beds	**07**
	(b)	Describe Grit chamber by giving design criteria	**07**
		OR	
Q.5	**(a)**	With sketch describe different types of sewer	**07**
	(b)	Explain Flash Mixer with sketch. Also discuss design criteria	**07**

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