

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) EXAMINATION – WINTER 2017****Subject Code: 2160604****Date: 28/11/2017****Subject Name: Water & Waste Water Engineering****Time: 02:30 PM TO 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.

		MARKS
Q.1	(a) How you can calculate daily average water demand of your city?	03
	(b) Draw typical flow sheet of municipal waste water treatment plant showing all its elements.	04
	(c) Enlist various sewer appurtenances. Discuss drop manhole with neat sketch.	07
Q.2	(a) Explain hydrostatic test to be performed after laying a water supply pipes.	03
	(b) How estimation of dry weather waste water discharge is carried out?	04
	(c) Define and classify intake. Write a brief note on river intake with neat sketch.	07
	OR	
	(c) Give design criteria for flash mixer. Also design a flash mixer for a design flow of 285 m ³ /hr. Assume required data	07
Q.3	(a) What are the requirements of good distribution system?	03
	(b) Differentiate geometrical increase method and incremental increase method of population forecasting.	04
	(c) Explain hydraulic elements of circular sewer, when running full as well as partially full.	07
	OR	
Q.3	(a) Enumerate the factors considered for selection of location of water treatment plant.	03
	(b) How will you decide the storage capacity of elevated service reservoir?	04
	(c) Explain zeolite process used for water softening along with their merits and demerits.	07
Q.4	(a) Write design criteria of horizontal flow grit chamber.	03
	(b) Explain theory of coagulation process in water treatment.	04
	(c) Define design period. Which factors are influencing selection of design period? Also give design period for different components of water supply scheme.	07
	OR	
Q.4	(a) Why circular sewers are more preferred for the sewerage system?	03
	(b) Differentiate ring system and radial system of water distribution network.	04
	(c) What are the requirements of disinfectants? Explain various minor methods of disinfection.	07

- Q.5** (a) What operational troubles are found in conventional trickling filter? **03**
- (b) Discuss “Septic tank – A low cost sanitation system.” **04**
- (c) Design primary settling tank of rectangular shape for a city having population of 45000 with water supply of 150 liter/capita/day. **07**
- OR**
- Q.5** (a) Give advantages and disadvantages of aerobic digester. **03**
- (b) What are the main features of activated sludge process? **04**
- (c) How efficiency of high rate trickling filter is calculated? **07**
