

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (OLD) EXAMINATION – WINTER 2018****Subject Code:160604****Date: 30/11/2018****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.

- Q.1** (a) Enlist different types of water demand. Explain the different factors affecting the water demand. **07**
(b) Enlist different methods of population forecast. Explain any three methods in detail. **07**
- Q.2** (a) Explain the factors affecting the site selection for an intake structure. **07**
(b) Draw the layout of a water treatment plant. Explain function of each unit. **07**
- OR**
- (b) What are the different types of pipes used for water supply? Discuss, Cast iron pipes and Concrete pipes in details. **07**
- Q.3** (a) Enlist various sewer appurtenances and write short note on any one. **07**
(b) What do you understand by a trickling filter? Explain with the help of a neat sketch, the biological process involved in working of a trickling filter. **07**
- OR**
- Q.3** (a) What is meant by activated sludge? Describe with sketches the treatment of sewage by activated sludge process. Mention the advantages and disadvantages of this system. **07**
(b) Draw the neat sketch of a clariflocculator and show its various parts. **07**
- Q.4** (a) How will you find out optimum dose of Alum? Explain the experiment in detail. **07**
(b) Explain daily variation of sewage flow. How will you estimate the wastewater discharge for design of a wastewater treatment plant? **07**
- OR**
- Q.4** (a) Write short notes on: **07**
(i) Methods of disinfection (ii) Distribution networks
(b) Why biological treatment is necessary? Differentiate suspended growth process and attached growth process. **07**
- Q.5** (a) Draw a complete flow diagram of wastewater treatment plant and describe the function of its each unit. **07**
(b) Compare Slow Sand Gravity Filter and Rapid Sand Gravity Filter. **07**
- OR**
- Q.5** (a) Explain design criteria for plain sedimentation tank. **07**
(b) Explain zeolite process for water softening with its merits and demerits. **07**
