

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY**

**BE - SEMESTER-VI(NEW) – EXAMINATION – SUMMER 2019**

**Subject Code:2160604**

**Date:18/05/2019**

**Subject Name:Water & Waste Water Engineering**

**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.

- Q.1** (a) Enlist different methods used for population forecast. **03**  
(b) What is Intake Structure? Give classification of the intake structure. **04**  
(c) Explain the different factors affecting the per capita water demand. **07**

- Q.2** (a) What are the objectives of water treatment? **03**  
(b) Design a intake well for a flow of  $0.1 \text{ m}^3/\text{sec}$ . **04**  
(c) Give the classification of different types of pumps used in water supply. **07**

**OR**

- (c) The following data have been noted from the census department. **07**

| Year       | 1981  | 1991  | 2001  | 2011  |
|------------|-------|-------|-------|-------|
| Population | 16000 | 24000 | 34000 | 47000 |

Calculate the probable population for the year 2031 and 2041 by arithmetical increase method and geometrical increase method.

- Q.3** (a) Enlist different component of water supply scheme. **03**  
(b) Explain different types of coagulant used for water treatment. **04**  
(c) What is Aeration? What are the objectives of providing the aeration in water treatment? **07**

**OR**

- Q.3** (a) Define: (1) Sedimentation (2) Plain Sedimentation (3) Coagulation. **03**  
(b) Why Grit chambers are provided in wastewater treatment plants? **04**  
(c) Draw a layout of a complete water treatment plant. **07**

- Q.4** (a) What are the requirements of a good distribution system? **03**  
(b) Enlist various types of screens and describe coarse screens. **04**  
(c) What is a distribution system? State the function of the distribution system. **07**

**OR**

- Q.4** (a) Write short note on: Septic tank **03**  
(b) Write short note on: Grid Iron system **04**  
(c) Draw a complete flow diagram of wastewater treatment plant and describe the function of its each unit. **07**

- Q.5** (a) Explain COD test. **03**  
(b) Explain Nitrification. **04**  
(c) Write short note on: Trickling filter **07**

**OR**

- Q.5** (a) Discuss diffused aeration system. **03**  
(b) State the importance of equalization basin. **04**  
(c) What is meant by sludge digestion? Explain in details. **07**

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