Seat No.:	Enrolment No.

## **GUJARAT TECHNOLOGICAL UNIVERSITY**

PDDC- SEMESTER-IV - EXAMINATION - SUMMER 2017

Subject Code: X40601 Date: 25/05/2017 **Subject Name: Environmental 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. 0.1 (a) Discuss various factors that affect the rate of water demand. 07 (b) Enlist different methods used for population forecasting and explain any two in 07 detail. 0.2 Discuss in brief various methods used for water distribution. 07 (a) Explain the theory of plain sedimentation for water treatment process and derive 07 the equation for settling velocity for discrete particles when Reynolds's No. is 1 to 1000 and particle size is varying from 0.1 to 1 mm diameter. Explain non-silting, non-scouring velocity with reference to design of sewers. 07 0.3 Write a short note on "river intake". (a) **07** Describe the principle of working of centrifugal pump. Classify various types of 07 **(b)** centrifugal pump. (a) Explain with neat sketch working of rapid sand gravity filter. 07 0.3 **(b)** Explain in detail: "water carriage system of sanitation." **07** What is the importance of water supply scheme? Explain with neat sketch 0.4 07 components of water supply scheme. **(b)** Why coagulants are added to raw water? State the reasons for using alum salt as **07** coagulant universally. OR Explain in brief chlorination as a method of disinfection. **07 Q.4** (a) Draw a layout of wastewater treatment plant and state the functions of all the **(b)** 07 units of wastewater treatment plant. Classify different types of Sewers. Explain any Two sewers in details. **Q.5** (a) **07 (b)** Write a short note on "Activated Sludge process". **07 Q.5** (a) Write a short note on (i) Brick sewer, (ii) Concrete sewers. **07** (b) Design bar screen for a peak flow of 10 MLD. Assume other suitable data. **07** 

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