Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC - SEMESTER–IV • EXAMINATION – SUMMER • 2014

Subject Code: X40601 **Date: 17-06-2014**

Subject Name: Environmental Engineering

Time: 10:30 am - 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)** Explain factors affecting rate of demand. **07**

(b) Explain variation in rate of demand. **07**

Q.2 **(a)** Explain factors affecting the location of intake. **07**

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

Year	1981	1991	2001	2011
Population	15000	23500	34000	50000

Calculate the probable population for the year 2031 and 2041 by arithmetic increase method and geometric increase method.

OR

(b) Design procedure for intakes. **07**

Q.3 **(a)** What is the importance of water supply scheme? Explain with neat sketch components of water supply scheme. **07**

(b) Explain in detail tree system of water distribution network. **07**

OR

Q.3 **(a)** How optimum dosage of coagulant can be determined? Explain in detail. **07**

(b) Explain gravity system method for water distribution. **07**

Q.4 **(a)** What are the types of aerators? Explain with net sketch cascade and inclined apron aerators. **07**

(b) Describe concept of flocculation with neat sketch. **07**

OR

Q.4 **(a)** Give comparison between slow sand filters and rapid sand filters. **07**

(b) Explain in brief about disinfection with requirement of disinfectants. **07**

Q.5 **(a)** Design a suitable grit chamber to cater a town of 2.2 lakh population with 155 lpcd sewage contribution. Assume peak factor=1.5. **07**

(b) Differentiate between trickling filter and activated sludge plant on any seven points. **07**

OR

Q.5 **(a)** What is self cleansing velocity of waste water flow in the sewers? What is dry weather flow? **07**

(b) Calculate the diameter and discharge of a circular sewer laid at a slope of 1 in 550 when it is running half full, and with a velocity of 1.1 m/s. Use Manning's equation. Take n=0.012. **07**

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