Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VI • EXAMINATION – SUMMER • 2014

Subject Code: 160604   **Date: 28-05-2014**
Subject Name: Water and Waste Water 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)** Discuss different water sources for water supply in a town? Draw a complete flow diagram   **07**
of water supply scheme.

(b) Draw a complete flow diagram of Wastewater Treatment plant and describe the function of   **07**
its each unit

Q.2 **(a)** Describe different types of screens and design a Intake fitted with coarse screen for a flow   **07**
of 0.1 cumecs.

(b) How the diameter of rising main is determined? Give the step wise procedure for finding   **07**
BHP of centrifugal pumps

OR

(b) Write short notes on (i) Factors affecting sludge digestion (ii) Types of settling phenomena   **07**

Q.3 **(a)** Explain the theory of sedimentation and prove that settling velocity does not depend upon   **07**
depth of sedimentation tank.

(b) Write short notes on (i) SOR and WOR (ii) Types of coagulants   **07**

OR

Q.3 **(a)** What are different types of water demands? Describe any three methods of Population   **07**
forecasting.

(b) What is clariflocculator? Design a clariflocculaor for out flow of 250 m^3/hr. Assume   **07**
suitable data as per manual.

Q.4 **(a)** Explain the theory of filtration and troubles in RSF. Design a RSF for getting out flow of   **07**
0.2 cumecs.

(b) Describe different layout of distribution network systems and discuss their merits and   **07**
demerits.

OR

Q.4 **(a)** Enumerate different sewer appurtenances and describe man hole with sketch   **07**

(b) Describe different hydraulic characteristics of circular sewer in running full and partial full   **07**
conditions.

Q.5 **(a)** What is HRTF? Determine the size of HRTF for flow of 4.5 Mld. If recirculation ratio =   **07**
1.4, BOD of wastewater =250 mg/l and final effluent desired = 50 mg/l.

(b) What are biological processes? Differentiate suspended growth process and attached growth   **07**
process.

OR

Q.5 **(a)** How is recirculation done in activated sludge process? Draw a flow diagram of wastewater   **07**
treatment using ASP.

(b) Design a septic tank with soak pit for 100 users.   **07**

****

1