

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-IV • EXAMINATION – WINTER 2013

Subject Code: 141304

Date: 30-12-2013

Subject Name: Water Pollution and Control

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) Draw a neat sketch of conventional Waste water treatment plant and explain the different units. **07**
(b) Give the detailed classification of filtration processes and explain depth filtration. **07**
- Q-2** (a) Differentiate between: (i) Primary Treatment and tertiary treatment **07**
(ii) Zone settling and Compression settling
(b) What is Screening? Gives its application and classification in brief. **07**
- OR**
- (b) Give the Application and classification of Grit Chamber and explain any one in detail. **07**
- Q-3** (a) Find the terminal settling Velocity for Spherical Partials with diameter 0.05 mm and Specific gravity 2.65. Settling Through a Water having Kinetic Velocity 1.004×10^{-6} m²/sec. **07**
(b) Enlist and explain the effects of water pollution. **07**
- OR**
- Q-3** (a) Determine the built up of head loss through a bar screen when 75% of flow area is blocked off due to accumulation of coarse solids. Assume the following conditions: > Approach velocity = 0.6m/s
➤ Velocity through clear bar = 0.9 m/s
➤ Open area for flow through clear bar screen = 0.19 m²
➤ Head loss coefficient for clear bar = 0.7. **07**
(b) Differentiate between : (i) Rapid mixer and flocculator **07**
(ii) Coagulation and flocculation
(iii) Perikinetik and ortho kinetik flocculation
- Q-4** (a) Explain the Working Principal of Trickling Filter and also Explain When anaerobic Condition are developed in Trickling Filter. **07**
(b) Derive the Stokes law for determining settling velocity of discrete particles. **07**
- OR**
- Q-4** (a) Explain the principle and working of rotating biological Contactor reactor with neat sketch. **07**
(b) Explain with neat diagram construction and working of Rapid Sand filter. **07**
- Q-5** (a) What is water softening? Explain softening by chemical precipitation **07**
(b) What is Thermal pollution? What are the methods to prevent the Thermal pollution. **07**
- OR**
- Q-5** (a) What is Disinfection Process? Explain its Application on Water Pollution. **07**
(b) Explain the Sources and Effect related to Oil pollution. **07**
