

GUJARAT TECHNOLOGICAL UNIVERSITY**B. E. - SEMESTER – VII • EXAMINATION – WINTER 2012****Subject code: 171303****Date: 01/01/2013****Subject Name: Industrial Water Pollution and Control****Time: 10.30 am - 01.00 pm****Total Marks: 70****Instructions:**

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1 (a)** Enlist and explain the primary and secondary benefits of pollution control. **07**
- (b)** Enlist the methods of Volume Reduction of industrial wastewater and explain any two. **07**
- Q.2 (a)** Explain the sources and effects of Oil Pollution **07**
- (b)** What are the factors to be kept in mind when selecting river as a disposal sink? **07**
- OR**
- (b)** Write a short note on **07**
- (i) Self purification of streams (ii) DO Sag curve
- Q.3 (a)** A municipal waste water treatment plant discharges treated effluent in to a surface stream. The flow rate of waste water is 10,000 m³/day, BOD₅ of 35 mg/L, DO concentration of 2 mg/L and temperature of 20⁰C. The stream (up stream from the point of waste water discharge) has a flow of 0.6 m³/s, a BOD₅ of 3 mg/L, DO concentration of 8 mg/L and temperature of 20⁰C. The deoxygenation constant is 1.23 d⁻¹ & reaeration constant is 0.4 d⁻¹. Determine the critical DO deficit, assuming saturated DO concentration to be 9.1 mg/L (at 20⁰C) **10**
- (b)** Explain the phenomena of stratification and overturn of lakes **04**
- OR**
- Q.3 (a)** Derive the equation for steady state concentration of pollutant in a lake. **07**
- (b)** Write a short note on Strength reduction of industrial wastewater. **07**
- Q.4 (a)** Highlight the need for Neutralization of wastes. Enlist and explain the methods of neutralization. **07**
- (b)** Write a brief note on concept and advantages of Common Effluent Treatment Plants. **07**
- OR**
- Q.4 (a)** How does industrial wastewater differ from domestic sewage? How does this affect the treatment process? **07**
- (b)** Enlist the different steps for conservation of water in industries. **07**
- Q.5** Write down the manufacturing process, sources and characteristics of wastewater and treatment process for any one of the following industries: **14**
- (i) Textile industry using any type of dye.
- (ii) Composite dairy
- OR**
- Q.5** Write down the manufacturing process, sources and characteristics of wastewater and treatment process for any one of the following industries: **14**
- (i) Sugar industry
- (ii) Tannery