Seat No.: _____ *Enrolment No._____*

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 (i) Self purification of streams (ii) DO Sag curve	**07**
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 m^3/day, BOD_5 of 35 mg/L, DO concentration of 2 mg/L and temperature of 20^0C. The stream (up stream from the point of waste water discharge) has a flow of 0.6 m^3/s, a BOD_5 of 3 mg/L, DO concentration of 8 mg/L and temperature of 20^0C.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 20^0C)	**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: (i) Textile industry using any type of dye. (ii) Composite dairy	**14**
		OR	
Q.5		Write down the manufacturing process, sources and characteristics of wastewater and treatment process for any one of the following industries: (i) Sugar industry (ii) Tannery	**14**