Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- VIIth SEMESTER–EXAMINATION – MAY/JUNE- 2012

Subject code: 171303 **Date: 09/06/2012**

Subject Name: Industrial Water Pollution and Control

Time: 02:30 pm – 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)**	Why there are different discharge standards for different environmental sinks? Justify your answer.	**07**
	(b)	With the help of appropriate examples explain the secondary and tertiary benefits of pollution control.	**07**
Q.2	**(a)**	High light your objections to the exceedance or crossing of the limits for (i) BOD (ii) SS (iii) pH	**07**
	(b)	Write a note on 'Waste management hierarchy'.	**07**
		OR	
	(b)	What is volume reduction? Enlist the different techniques of volume reduction and explain any one in detail.	**07**
Q.3	**(a)**	Explain and differentiate, with advantages and disadvantages, between effluent standards and stream standards. Is it practically feasible to adopt stream standards in India?	**08**
	(b)	Enlist and explain briefly the points to be considered for discharge of effluents on to land for irrigation.	**06**
		OR	
Q.3	**(a)**	Explain how industrial wastewaters differ from domestic wastewater.	**07**
	(b)	(i) Differentiate between 'criteria' and 'standard'. (ii) Explain with the help of an example 'population equivalent'.	**07**
Q.4	**(a)**	Prepare a list of strength reduction techniques and explain any two.	**07**
	(b)	Explain the importance of following processes in treatment of industrial wastewater: (i) Equalization and proportioning (ii) Neutralization.	**07**
		OR	
Q.4	**(a)**	Enlist and explain the causes and effects of oil pollution from industries.	**07**
	(b)	Enlist the different steps for conservation of water in industries.	**07**
Q.5	**(a)**	Write a note on .Common Effluent Treatment Plant(CETP).	**07**
	(b)	Write down the manufacturing process, sources and treatment of wastewater for any one of the following industries: (i) Sugar industry (ii) Cotton textile (iii) Distillery.	**07**
		OR	

Q.5 **(a)** A waste water containing 130 mg/L BOD_5 after primary treatment is discharged into a river at the rate of 80,000 m^3/d.The river has a minimum flow of 8 m^3/s, a BOD of 2 mg/L, DO of 7.2 mg/L and velocity of 10 Kmph. Determine oxygen sag at critical point and at a distance of 30 Km down stream from the point of discharge. Assume the temperature of mix is 20^0 C, k_d=0.3 and k_r=0.9 and saturated DO concentration as 10.2 mg/L. **08**

(b) With the help of a sketch, explain the concept of stratification and overturn of lakes. **06**

****