Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI • EXAMINATION – SUMMER • 2015

Subject Code: 163504 **Date:12/05/2015**

Subject Name: Liquid Effluent Control- I

Time: 10.30am-01.00pm **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)**	What are the fundamentals of waste water? Briefly explain the types of waste water.	**07**
	(b)	What do you mean by ETP? Draw a process flow diagram of a typical conventional treatment plant.	**07**
Q.2	**(a)**	Write short notes on: a) Oxidation Pond b) Anaerobic biological treatment	**07**
	(b)	Explain the various sources of urban water pollution. Also characterize the urban water pollution in brief.	**07**
		OR	
	(b)	Enlist the factors influence the selection of treatment system. Write the various function of treatment plant units	**07**
Q.3	**(a)**	What do you mean by disinfection? Explain various methods of disinfection.	**07**
	(b)	Drive an expression for BOD with time. What are the factors on which the de-oxygenation constant (k) depends?	**07**
		OR	
Q.3	**(a)**	What are BOD and COD? What is their significance in wastewater treatment? Which of the two will be higher in waste water? Why?	**07**
	(b)	What do you mean by water distribution system? Explain various methods of water distribution.	**07**
Q.4	**(a)**	What is the principle of MBR? What are the advantage and disadvantage of MBR?	**07**
	(b)	What do you mean by quality & characteristics of sewage? Enlist all the parameters and explain any three of them in brief with their discharge limits	**07**
		OR	
Q.4	**(a)**	What do you mean by secondary treatment of Effluent? Enlist various methods and explain Activated sludge process with a suitable diagram.	**07**

(b) Enlist the main unit normally provided for each of the following system **07**

a) Preliminary treatment
b) Primary treatment
c) Secondary treatment
d) Tertiary treatment

Q.5 **(a)** What is Coagulation and flocculation process. Explain various factors affects the co-agulation process. **07**

(b) What do you mean Advance waste water treatment? Enlist various methods and explain any one method with example. **07**

OR

Q.5 **(a)** What is Clean water Act(CWA), 1972? Explain with its silent feature. **07**

(b) What is water pollution? Write short notes on water borne disease. **07**

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