

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? **07**
Justify your answer.
- (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 **07**
(i) BOD (ii) SS (iii) pH
- (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'. **07**
(ii) Explain with the help of an example 'population equivalent'.

- 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: **07**
(i) Equalization and proportioning
(ii) Neutralization.

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: **07**
(i) Sugar industry (ii) Cotton textile (iii) Distillery.

OR

- Q.5** (a) A waste water containing 130 mg/L BOD₅ after primary treatment is discharged into a river at the rate of 80,000 m³/d. The river has a minimum flow of 8 m³/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 20⁰ 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**
