

**GUJARAT TECHNOLOGICAL UNIVERSITY****M. E. I<sup>ST</sup> Semester–Remedial Examination – July- 2011****Subject code: 711802N****Subject Name: Industrial Wastewater Management****Date: 08/07/2011****Time: 10:30 am – 01:00 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) What are the objectives of a typical Common Effluent Treatment Plant (CETP)? **07**  
 (b) Explain the terms 'recycling', 'reuse' and 'recovery' in the context of water reuse. **07**

- Q.2** (a) Explain, in detail, the need for establishing the effluent standards. How are they different than criteria? **07**  
 (b) Define and differentiate between effluent standards and stream standards with the help of appropriate examples. **07**

**OR**

- (b) Technically justify why the discharge standards are different for different environmental sinks. **07**

- Q.3** (a) You have been invited by a medium scale industry to suggest the means to reduce the cost of effluent treatment without compromising with the effluent quality to be discharged. Suggest methodological approach with justification. **08**  
 (b) Justify and briefly describe the secondary and tertiary benefits of pollution control **06**

**OR**

- Q.3** (a) How will you convince an industrialist that the cost of pollution control is not unbearable? Base your answer on appropriate examples. **07**  
 (b) Suggest the methods of effluent volume reduction at a large scale industry. **07**

- Q.4** (a) What is 'characterization of wastewater'? Explain its importance in the design of a CETP in an existing industrial estate having a large number of small and medium industries of different types **07**  
 (b) What, according to you are the barriers to extensive municipal or industrial water reuse? **07**

**OR**

- Q.4** (a) Explain the different aspects to be considered while planning the steps for pollution prevention at an industry. **07**  
 (b) Highlight advantages and limitations of a CETP **07**

- Q.5** (a) Write a note on Waste Minimization hierarchy. **07**  
 (b) Enlist and explain the objectives and scope of Cleaner Production. **07**

**OR**

- Q.5** (a) Enlist and explain the types of surveys to be carried out prior to design of CETP. **07**  
 (b) Describe 'seasonal storage requirements' in the context of water reuse **07**

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