

GUJARAT TECHNOLOGICAL UNIVERSITY**M.E Sem-I Examination January 2010****Subject code: 711802****Subject Name: Industrial Wastewater Management****Date: 22 / 01/ 2010****Time: 12.00 – 2.30 pm****Total Marks: 60****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Enlist & explain the tangible and intangible benefits of pollution control. **06**
(b) Highlight advantages and limitations of a CETP. **06**

- Q.2** (a) Why has India adopted the effluent standards? Justify your answer. **06**
(b) Explain briefly how classification of wastes helps in reducing the volume of waste water to be treated. **06**

OR

- (b) Suggest some common measures which industry can adopt to conserve water and reduce Waste water volume. **06**

- Q.3** (a) Describe in brief the manufacturing process, sources of waste water & line of treatment for sugar industry **08**
(b) What is neutralization? Why is it required? Explain any one method of neutralization? **04**

OR

- Q.3** (a) Write down the manufacturing process, sources & treatment of waste water from paper & Pulp industry. **08**
(b) Explain the concept of “Equalization”. What are the benefits of equalization? **04**

- Q.4** (a) Why should one consider reuse of water? What are the potential uses of reclaimed water? **08**
(b) Discuss barriers to extensive municipal or industrial water reuse. **04**

OR

- Q.4** (a) It is decided to plan a water reuse system in Ahmedabad Municipal Corporation. You are asked to do ‘characterization of sources’. What aspects will you consider for this purpose? **08**
(b) Describe ‘seasonal storage requirements’ in the context of water reuse **04**

- Q.5** (a) Write a short note on **08**
(i) Membrane bio-reactor(MBR)
(ii) Locating sources of reclaimed water
(b) Explain Stream standards and Effluent standards **04**

OR

- Q.5** (a) Write a detailed note on: **08**
(i) Design features in ‘reliability in treatment’ for water reclamation
(ii) Supplemental water reuse system facilities
(b) Write a note on “Consideration of environmental impacts’ in planning reuse systems”. **04**
