B.Tech. Degree VIII Semester Examination, May 2006

CE 803 A/B (D) INDUSTRIAL WASTE ENGINEERING AND MANAGEMENT

(2002 Admissions)

Time: 3 Hours Maximum Marks: 100

(All questions carry ***EQUAL*** marks)

I a) Explain stream standards and effluent standards.
b) Explain the important characteristics of industrial wastewater.
c) Explain the various methods for neutralization of waste waters.

OR

II a) With the help of a general layout of an industrial effluent treatment plant, explain the various processes/units used.
b) Explain :
(i) Objectives of equalization tank
(ii) Variations in waste water flow rates

III a) Explain:
(i) Ocean disposal of wastes
(ii) River outfall
b) Explain the Streeter-Phelp's equation. What are its applications?
c) Explain the terms wastewater reclamation and reuse. What are its limitations?

OR

IV a) With the help of a sketch, explain the oxygen sag curve.
b) The ultimate BOD of a river just below a sewage outfall is 50.0mg/L and the DO is at the saturation value of 10.0mg/L. The deoxygenation rate coefficient Kd is 0.30/day and the reaeration rate coefficient Kr is 0.90/day.The river is flowing at a speed of 60Km/day. The only source of BOD on this river is this single outfall.
(i) find the critical distance downstream at which DO is a minimum (ii) find the minimum DO (iii) the DO that could be expected at 40km downstream.

V a) What are the important biological waste treatment methods? Explain any one method in detail.
b) Explain the application of (i) reserve osmosis and (ii) adsorption in waste treatment.

OR

VI Write ***short notes*** on:
(i) anaerobic processes (ii) ion exchange process
(i) attached and suspended growth systems

VII Explain the characteristics of the wastewater from the following industries. Also draw flow diagram for treatment for each. (any three)
(i) paper and pulp (ii) sugar mill
(iii) fertilizer (iv) textile mill

VIII a) Explain the term 'Environmental Auditing'.
b) With sketches explain :
(i) bag house
(ii) electrostatic precipitator

OR

IX a) Explain the various methods for removal of gaseous air pollutants.
b) Explain :
(i) Ecolabelling (ii) Life cycle assessment

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