

B. Tech Degree VIII Semester Examination, April 2008

CE 803 A/B (D) INDUSTRIAL WASTE ENGINEERING AND MANAGEMENT
(2002 Scheme)

Time : 3 Hours

Maximum Marks : 100

(All questions carry **EQUAL** marks)

- I. (a) Write down the important contaminants of concern in wastewater with their reason for importance.
(b) Give five factors that must be considered when selecting and evaluating unit operations and unit processes.
(c) Explain short notes on the following :
(i) Equalization (ii) Proportioning
- OR**
- II. (a) What are the items to be considered in developing average flow rates and peaking factors?
(b) Explain
(i) Objectives of wastewater treatment
(ii) Stream quality criteria for effluent standards
- III. (a) Draw a typical oxygen sag curve in a stream subjected to pollution
(b) How do you estimate the assimilation capacity of a stream
(c) List the various methods of wastewater reclamation and reuse.
- OR**
- IV. (a) Explain the importance of study of re-oxygenation and de-oxygenation in problems of stream sanitation.
(b) The sewage discharge of a city is $85 \text{ m}^3/\text{sec}$ in the river having a minimum discharge of $930 \text{ l}/\text{sec}$ with a velocity of $0.12 \text{ m}/\text{sec}$. The BOD at 20°C of the sewage is $325 \text{ mg}/\text{l}$. The BOD of the river is zero. Determine the quality and point of critical D.O deficit.
- V. (a) Describe briefly the various constituents of a coagulation-sedimentation plant.
(b) Write short notes on :
(i) Reverse osmosis (ii) Ion exchange
- OR**
- VI. (a) Name the different modifications of the activated sludge process.
(b) Explain the processes of purification of wastewaters by trickling filters.
- VII. (a) Enlist and explain the various contact processes used in anaerobic biological treatment of liquid wastes.
(b) Explain the design considerations used in UASB process.
- OR**
- VIII. (a) Name the pollutants from fertilizer and tanning factories
(b) Write short notes on :
(i) Characteristics of textile wastes
(ii) Pretreatment of industrial wastes.
- IX. (a) What are the major functions of an environmental audit.
(b) List out the pollutants causing air pollution and their sources of origin.
- OR**
- X. (a) State the requirements of an environmental management system and the duties of an environmental manager in an industry.
(b) Explain the various methods for removal of gaseous air pollutants.

