

Dec 13 (KUS)

Roll No. Total Pages : 03

BT-8/D-13 8844

INDUSTRIAL WASTE WATER TREATMENT

CE-406-E

Time : Three Hours [Maximum Marks : 100]

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks. Assume suitable data, wherever necessary.

Unit I

- 1. (a) Define industrial wastewater. How is it different from domestic sewage ? 12
- (b) How will you classify industries on the basis of characteristic strength of wastewaters ? 8

- 2. State and discuss the adverse effects of disposal of industrial wastewater on receiving streams. 20

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Unit II

3. What is 'Population Equivalent' ? A dairy processing about 1,50,000 kg. of milk daily, produced an average of 250 m³/day of wastewater with a BOD of 1,500 mg/L. Compute the wastewater flow and BOD per, 1,000 kg. of milk received, and the population equivalent of the daily waste discharge. 20

4. (a) Give the tolerance limits (with appropriate units) for industrial effluents to be discharged into inland surface water sources, as per ISI standards, for the following parameters :
BOD₅; Temperature; Total Residual Chlorine; Phenolic compounds and Zinc. 10

(b) Give ISI standards of industrial wastewater to be discharged on land for irrigation for the following parameters :
pH; Oil and grease; Suspended solids; BOD₅ and Cyanide. 10

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Unit III

5. State and discuss the measures/steps that can be adopted to minimize the effects of industrial effluents on wastewater treatment plants. 20

6. Write short notes on the following :

(a) Recycling and reuse of industrial wastewater 10

(b) Industrial Housekeeping. 10

Unit IV

7. State the characteristics of wastes from a sugar mill. How will you treat the effluent of a sugar mill ? 20

8. What type of waste is being produced at the Panipat Thermal Power Plant ? How is this waste being handled at the plant site ? Give your comments in brief. 20

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