

Roll No.

Total Pages : 3

BT-8/D-19

38222

INDUSTRIAL WASTEWATER TREATMENT

Paper : CE-406 N

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt five questions in all, selecting at least one question from each unit.

UNIT-I

1. (a) Briefly explain the effects of industrial wastewater on sewage treatment plants. 7½
(b) Explain in detail the factors to be considered for stream sampling. 7½
2. Discuss the classification of the waste. Explain the harmful effects of disposal of industrial waste on sewage treatment plant. 15

UNIT-II

3. (a) Explain the volume reduction as applied to industrial waste. 7½
(b) In what different ways the neutralizations of industrial waste is achieved ? Explain. 7½

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4. (a) Explain briefly the methods for removal of suspended solids from industrial waste water. 7½
(b) Write short notes on :
(i) Ion exchange method.
(ii) Reverse osmosis process. 7½

UNIT-III

5. Define population equivalent. A dairy processing about 1,50,000 kg. of milk daily, produced on 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. 15
6. Give ISI standards of industrial wastewater to be discharged on land for irrigation for the following parameters :
pH; oil and grease; suspended solids; BOD₅; cyanide COD; temperature; Total Residual chlorine; Phenolic compounds and zinc. 15

UNIT-IV

7. (a) What kind of wastes will origin from a typical dairy industry ? Explain. 7½
(b) How are the wastes from the following units in a steel plant treated :
(i) Coal washery.

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(ii) Blast furnace.

(iii) Coke ovens.

(iv) Pickling. 7½

8. (a) With a flow diagram, Explain the treatment units adopted in the treatment of typical pulp and paper mill.

7½

(b) How do you treat a synthetic drug waste from pharmaceutical industry ? 7½

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