



USN

--	--	--	--	--	--	--	--	--	--

10CV835

**Eighth Semester B.E. Degree Examination, June/July 2018**  
**Industrial Wastewater Treatment**

Time: 3 hrs.

Max. Marks:100

**Note:** Answer any FIVE full questions, selecting atleast TWO questions from each part.

**PART – A**

- 1 a. Differentiate between Domestic and Industrial waste water. (06 Marks)  
b. Discuss the factors to be considered in stream sampling. (08 Marks)  
c. Explain the terms Effluent standards, Stream standards and Stream classification. (06 Marks)
- 2 a. Explain in detail Streeter – Phelps formulation of mathematical analysis. (10 Marks)  
b. Obtain the DO, Deficit profile for 100km given the city discharge is 20000 m<sup>3</sup>/day of sewage and river discharge is 0.7m<sup>3</sup>/sec. (10 Marks)

Data given :

Parameter	River	Sewage effluent from STP
DO	8.2 mg/L	2.0 mg/L
Temperature	23 <sup>o</sup> C	26 <sup>o</sup> C
BOD 5d, 40 <sup>o</sup> C	3.4 mg/L	45mg/L

- 3 a. Explain the necessity and process of volume reduction as a strategy in industrial waste water treatment. (10 Marks)  
b. Discuss the terms Neutralization, Equalization, Proportioning and By – product recovery. (10 Marks)
- 4 a. Explain the unit operations adopted for removal of suspended solids and inorganic solids. (10 Marks)  
b. Explain with a neat sketch, suspended growth biological process. (10 Marks)

**PART – B**

- 5 a. Combined treatment in common effluent treatment facility is very effective for industrial estates. Discuss the reasons and consequences. (10 Marks)  
b. Explain the effects of discharging treated and partially treated waste water into rivers. (10 Marks)
- 6 a. Draw a neat flow diagram to show the points of generation of wastes in a cotton textile mill and explain. (10 Marks)  
b. How does Tannery waste affect the water bodies? Explain the production and treatment of waste water with a flow diagram. (10 Marks)
- 7 a. Discuss the effects of dairy waste on streams and propose a treatment strategy for prevention of effects on a river. (10 Marks)  
b. How is ecology of estuaries affected by establishing cannery for fish export industry? Explain. (05 Marks)



10CV835

- c. Give the sources of effluents from a cement manufacturing process. (05 Marks)
- 8 a. Draw a neat flow diagram for the manufacture of paper and pulp and give a treatment strategy for the combined waste. (10 Marks)
- b. Give the strategy of treating using bacteria for antibiotic waste from a pharmaceutical industry. (05 Marks)
- c. Effective maintenance of food to micro – organism ratio is essential for treating industrial wastes. Explain. (05 Marks)

\*\*\*\*\*