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10CV835

**Eighth Semester B.E. Degree Examination, July/August 2022**

**Industrial Wastewater Treatment**

Time: 3 hrs.

Max. Marks: 100

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

**PART – A**

- 1 a. Enumerate the effect of discharge of raw industrial wastewater into the municipal wastewater treatment plant. (10 Marks)
- b. What do you understand by stream standards and effluent standards? What are the advantages and disadvantages of stream standards? (10 Marks)
- 2 a. Explain effluent and stream standards and legislations to control water pollution. (10 Marks)
- b. Explain Dissolved Oxygen Sag curve in streams. (10 Marks)
- 3 a. Explain the strength reduction as applied to industrial wastewater. (10 Marks)
- b. What are different ways the neutralization of industrial wastes is achieved? Explain. (10 Marks)
- 4 a. Discuss the importance of removal of dissolved organic matter from the industrial wastewater. Explain the biodegradable organics removal by activated sludge process. (10 Marks)
- b. Discuss the methods adopted for treatment and disposal of sludge solids of industrial wastewater treatment. (10 Marks)

**PART – B**

- 5 a. Write a note on discharge of raw, partially treated and completely treated wastes to streams. (10 Marks)
- b. Explain the process flow sheet showing origin (source) of wastewater. (10 Marks)
- 6 a. With process flow diagram, explain the origin of waste from sugar mill. (10 Marks)
- b. Explain briefly with the help of process flow diagram, the origin of waste from tannery industry. (10 Marks)
- 7 a. Write the process flow diagram indicating the sources of wastewater in a dairy industry. Give the combined wastewater characteristics of a dairy industry. (10 Marks)
- b. Discuss the treatment alternatives for a fruit canning industry with the flow diagram and indicate the removal efficiency of each unit. (10 Marks)
- 8 a. Explain the characterization and treatment of paper and pulp industry. (10 Marks)
- b. Explain the characteristics of pharmaceutical industry waste water. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and/or equations written eg, 42+8 = 50, will be treated as malpractice.