

# CBCS SCHEME

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18CH651

## Sixth Semester B.E. Degree Examination, July/August 2022 Process Wastewater Management

Time: 3 hrs.

Max. Marks: 100

*Note: Answer any FIVE full questions, choosing ONE full question from each module.*

### Module-1

- 1 a. What do you mean by sewer and sewerage system? Discuss the relative merits and demerits of separate system of sewerage and combined system of sewerage. (12 Marks)  
b. Explain BOD and discuss the advantages and disadvantages of BOD. (08 Marks)

OR

- 2 a. Discuss the effects of waste additions on physical and chemical properties of soil. (12 Marks)  
b. List and define chemical and biological characteristics of wastewater. (08 Marks)

### Module-2

- 3 a. Explain in detail various steps adapted for industrial wastes survey with suitable example. (12 Marks)  
b. Discuss in detail the grab sampling technique and outline its applications and limitations in Industrial Waste Characterization. (08 Marks)

OR

- 4 a. What is biomonitoring and continuous monitoring of industrial wastewater? (12 Marks)  
b. Outline the real time monitoring method of pH and conductivity of industrial wastewater sample. (08 Marks)

### Module-3

- 5 a. What do you mean by equalization of wastes? Explain the procedure adapted during equalization of industrial wastes. (10 Marks)  
b. List the specific process for treating inorganic waste and explain any one. (10 Marks)

OR

- 6 a. Explain the limestone and lime-slurry treatment method given to acid wastes. (10 Marks)  
b. Explain the term waste-strength reduction with reference to industrial wastewater. (10 Marks)

### Module-4

- 7 a. Describe briefly the types of radioactive wastes. (10 Marks)  
b. Explain briefly the importance of radiotracer technique in wastewater treatment plant. (10 Marks)

OR

- 8 Enumerate the in-situ bioremediation techniques like bioslurping, bioventing, bio sparging and permeable reactive barriers. (20 Marks)

### Module-5

- 9 a. What is environmental auditing? Describe the purpose and benefits of environmental audit. (12 Marks)  
b. Write a short note on ISO 14001. (08 Marks)

OR

- 10 Describe in detail the three phases of activities involved in environmental audit. (20 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.