



CBCS SCHEME

17CV71

Seventh Semester B.E. Degree Examination, Jan./Feb. 2023 Municipal and Industrial Wastewater Engineering

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. Describe in brief various types of water carriage system stating advantages and disadvantages of each. (10 Marks)
- b. What do you understand by Dry Weather flow? Discuss in brief various factors affecting the dry weather flow. (10 Marks)

OR

- 2 a. With a neat sketch explain the working of manholes. (10 Marks)
- b. A certain district of city has a projected population of 50000 residing over an area of 40 hectares. Find the design discharge for the sewer line, for the following data:
 - i) Rate of water supply = 200 liters per capita per day.
 - ii) Average impermeability co-efficient for the entire area = 0.3
 - iii) Time of concentration = 50 minutesThe sewer line is to be designed for a flow equivalent to the wet weather flow plus twice the dry weather flow. Use U.S. Ministry of Health formula. Assume that 75% of water supply reaches in sewer as wastewater. (10 Marks)

Module-2

- 3 a. What do you understand by the term Self-Cleaning velocity and limiting velocity in sewers? (10 Marks)
- b. A circular sewer of 1m diameter carries a certain discharge while running full. What will be the depth of flow and the corresponding velocity ratio if the discharge in the sewer is reduced to one fourth the value? Assume that N remains constant at all states of flow. (10 Marks)

OR

- 4 Write short note on :
 - a. Oxygen Sag Curve
 - b. Sewage Farming and Sewage Sickness
 - c. Zone of Pollution
 - d. Dilution Factor. (20 Marks)

Module-3

- 5 a. With neat flow diagram of waste water treatment explain the function of each component. (10 Marks)
- b. Explain the physical and chemical characteristics of sewage. (10 Marks)

OR

- 6 a. With neat sketch explain the working of trickling filter. (10 Marks)
- b. Write a short note on :
 - i) Sequential batch reactor
 - ii) Moving bed reactor. (10 Marks)

Module-4

- 7 a. Write the difference between domestic sewage and industrial waste water. (10 Marks)
b. Explain strength reduction and neutralization methods. (10 Marks)

OR

- 8 a. List and explain the ion exchange process in inorganic solid removal techniques. (10 Marks)
b. Explain the merits and demerits of combined treatment. (10 Marks)

Module-5

- 9 a. Explain the source and characteristics of cotton and textile industry. (10 Marks)
b. With neat flow diagram explain distilleries waste water treatment components. (10 Marks)

OR

- 10 a. Write the sources and treatment and cement industry. (10 Marks)
b. Write the characteristics of pharmaceutical industry waste water and explain the flow diagram of pharmaceutical waste water treatment components. (10 Marks)

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