

**II B. TECH II SEMESTER REGULAR EXAMINATIONS, JUNE - 2022**  
**ENVIRONMENTAL ENGINEERING**  
**(CIVIL ENGINEERING)**

Time: 3 hours

Max. Marks: 70

**Note:** Answer **ONE** question from each unit (**5 × 14 = 70 Marks**)

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UNIT-I

1. a) Discuss the factors which are required to be considered in the selection of the type of a pump. [7M]
- b) Given the following census data of a town, predict the population at the end of next two decades by Geometrical increase method and Incremental increase method. [7M]

| Year                | 1971 | 1981 | 1991 | 2001 | 2011 |
|---------------------|------|------|------|------|------|
| Population in Lakhs | 1.1  | 1.8  | 2.55 | 3.25 | 4.2  |

(OR)

2. a) Explain the significance of the following water quality parameters and give their permissible limits for drinking purpose as per IS 10500-1995. [7M]  
 i) Chlorides ii) Nitrates iii) Fluorides iv) Iron v) Turbidity
- b) Discuss the factors affecting the selection of suitable site for an intake structure. [7M]

UNIT-II

3. a) Explain the construction of Rapid Sand Filter (Gravity type). [7M]
- b) Derive Stokes law for finding settling velocity of a discrete spherical particle. [7M]

(OR)

4. a) Describe step-wise procedure for the analysis of complex distribution networks using Hardy- Cross method of balancing heads by correcting assumed flows. Derive the equation you use in this method. [7M]
- b) Explain the principle of coagulation. How alum acts as a coagulant? Discuss with appropriate chemical equations. [7M]

UNIT-III

5. a) Calculate 1 day 37°C BOD of sewage sample whose 5 day 20°C BOD is 200 mg/L. Assume BOD rate constant k as 0.23/day. [7M]
- b) Describe any two methods of ultimate disposal of sewage. [7M]

(OR)

6. a) What do you understand by cycles of decay? Discuss nitrogen cycle and sulphur cycle with neat diagrams. [7M]
- b) Describe conservancy and water carriage systems. What are the relative advantages and disadvantages of the two systems? [7M]

## UNIT-IV

7. a) Discuss about various types of sewers and their appurtenances. [7M]
- b) Discuss about importance of house plumbing. [7M]

(OR)

8. a) Examine the primary treatment methods of sewage. [7M]
- b) Write a short note on [7M]
- i) septic tanks      ii) rural latrines

## UNIT-V

9. a) Describe the process of Anaerobic Sludge Digestion. [7M]
- b) Explain about Sludge Disposal methods. [7M]

(OR)

10. a) What are the advantages of oxidation ponds? [7M]
- b) Explain about Types of Trickling filters. [7M]

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