

## II B. Tech II Semester Supplementary Examinations, December - 2022

## ENVIRONMENTAL ENGINEERING

(Civil Engineering)

Time: 3 hours

Max. Marks: 70

Answer any **FIVE** Questions, each Question from each unit  
All Questions carry **Equal** Marks

## UNIT-I

- 1 a) What do you mean by the term per capita demand? How is it estimated? [7M]  
b) Mention and describe the various purposes for which water is supplied to a modern Industrial town. [7M]

**Or**

- 2 a) What are the various sources of water used in water supply schemes? Discuss their merits and demerits from quality and quantity point of view. [7M]  
b) A 30 cm gravity well is being pumped at the rate of 1,350 lpm measurements made in nearby test wells at the same time are as follows: [7M]  
Draw down in a test well 6 m away = 4.5 m.  
Draw down in a test well 30 m away = 0.9 m.  
Distance of the ground water table above bottom of the well = 75m  
Determine (a) the drawdown in the well during pumping,  
(b) the specific capacity of the well .

## UNIT-II

- 3 a) (i) What are the advantages of plain sedimentation? [7M]  
(ii) What is the main process involved in plain sedimentation?  
b) Write short notes on: [7M]  
(i) Mixing devices (ii) Flocculation (iii) Clarifiers

**Or**

- 4 a) What are the various methods of disinfecting water? State the theory of disinfection of water by chlorine. What factors affect the efficiency of the disinfection process? [7M]  
b) What is meant by: [7M]  
(i) Chlorine process (ii) Desalination

## UNIT-III

- 5 a) What are the types of pipes in the use for carrying water? Indicate approximately diameter/pressure ranges in which they are used. Mention and sketch any two types of joints used for water mains. [7M]  
b) What are the various methods of conveyance of water? Describe. [7M]

**Or**

- 6 a) Enumerate the type of pumps you would employ in water works. Discuss their advantages and disadvantages. [7M]  
b) Sketch and explain in detail. [7M]  
i) Intake tower in reservoir ii) Direct intake from a river



UNIT-IV

- 7 a) Write a note on the flushing of town sewers. Sketch and describe the working of an automatic flushing tank for a town sewer. [7M]
- b) Explain the part played by the following units and the considerations effecting their choice, design and lay-out: [7M]
  - iii) Grit channel,
  - ii) Coarse and fine screens
  - iii) Sump wells.

**Or**

- 8 a) What are various classification of pumps? With the help of a neat sketch describe the centrifugal pump. [7M]
- b) Give essential differentiation between the following: [7M]
  - iii) Street inlets and catch basins
  - ii) Side weirs and siphon spillways
  - iii) Manholes and inverted siphons

UNIT-V

- 9 a) What do understand by primary process and secondary process of sewage treatment purifications? [7M]
- b) What do you understand by screening and skimming? What are the various type of screens? Describe. [7M]

**Or**

- 10 a) What do you understand by the biological treatment of sewage? What is the principal of biological treatment? [7M]
- b) Write short notes on: [7M]
  - i) Bio filters
  - ii) Humus tanks

