

Roll No.

3306

**B. Tech. 6th Semester (Civil) (Elective – I)
Examination – May, 2023**

WASTE WATER TREATMENT

Paper : PEC-CEEL-302-G

Time : Three Hours]

[Maximum Marks : 75

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt *five* questions in all, selecting *one* question from each Unit. Question No. 1 is *compulsory*. All questions carry equal marks.

1. Define : 6 × 2.5 = 15

- (a) Sewage and sullage
- (b) BOD
- (c) Grit Chamber
- (d) Sewage sickness
- (e) Secondary sludge
- (f) Oxidation pond

UNIT - I

2. (a) Explain the different types of systems with their suitability. Also, explain their advantages and disadvantages. 10
- (b) Define dry weather flow. Explain factors affecting dry weather flow. 5
3. (a) Explain the different types of sewers with their suitability. 8
- (b) Write in detail about sewer appurtenances used in sewers. 7

UNIT - II

4. (a) Discuss the different types of systems of plumbing. Explain two pipe plumbing system with neat sketch. 8
- (b) Name and explain the different types of pipes used in house sewer connections. 7
5. (a) Calculate 1 day 37° C BOD of sewage sample whose 5 days 20° C BOD is 100 mg/l. 8
- (b) Explain the importance of determination of turbidity in sewage. How do you determine the turbidity in a given sample of wastewater? 7

UNIT - III

6. Explain sedimentation tank with their design steps, theory, functions and their efficiencies. Also, discuss their disposal of residual. 15

7. Write a short note with neat sketches : 8 + 7
- (a) Septic tank
- (b) Oxidation ditches

UNIT - IV

8. Write a short note on : 8 + 7
- (a) Sludge digestion process and its objectives.
- (b) Thickening of sludge and sludge drying bed.
9. Explain :
- (a) Bangalore method of refuse disposal. 7
- (b) Give the standards for discharge of sewage in surface water sources of the following :
BOD, Fluorides, Total residual chlorine, Lead. 8