Roll No. | | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 18

B.Tech (Civil Engg.) (Sem.–5)

ENVIRONMENTAL ENGINEERING

Subject Code : BTCE-504-18

M.Code : 78463

Time : 3 Hrs. Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

Answer briefly :

1) Why are groundwater sources considered superior compared to surface water sources?

2) List any two water quality indexing methods. Compare their merits.

3) Define design period. List the typical design periods of any four components of water supply scheme.

4) What is meant by Dry Weather Flow (DWF)? How is it important in sewer design?

5) What is meant by self cleansing velocity in sewers? How is it important?

6) Define and contrast between sewage and sullage.

7) Define and contrast between HRT and BSRT.

8) Differentiate between primary and secondary air pollutants. Give two examples of each.

9) What is meant by circular economy? How is this concept applied in solid waste management?

10) What are anti-syphonage pipes? Why are they used in plumbing fixtures?

SECTION-B

11) Explain the importance of (i) Conductivity (ii) hardness as water quality parameters. What quality aspects do they generally indicate?

12) Explain the different mechanisms of filtration.

13) Prove that depth is not a theoretical criterion in designing a plain sedimentation tank.

14) What are the various plumbing systems? Compare the relative merits and demerits.

15) Compare the advantages and disadvantages of aerobic and anaerobic systems of wastewater treatment taking at least two examples from each.

SECTION-C

16) a) What is a balancing tank? State its importance in the distribution system.

b) Calculate the storage required to supply the demand shown below if the inflow of water to the reservoir is maintained at a uniform rate throughout 24 h.

Time	Demand (million litres)
00 – 04	0.40
04 – 08	0.85
08 – 12	1.33
12 – 16	1.00
16 – 20	0.82
20 – 24	0.54

17) Write short notes differentiating the following :

a) Suspended and attached growth systems

b) Inspection Chamber and Manhole

c) Grit Chamber and skimming tank

d) Oxidation ponds and Lagoons

18) Write short notes on the following :

a) Bag Filters

b) Electrostatic Precipitators (ESP)

c) Wind velocity profile

d) Catalytic converters

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.