

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.