Total No. of Questions – [03]

Total No. of Printed Pages: 02

G.R. No.	

PAPER CODE	U321-223(ESE)

MAY 2022 - ENDSEM EXAM

T. Y. B. TECH. (Civil Engineering) (SEMESTER - II)

COURSE NAME: Environmental Engineering

COURSE CODE: CVUA32183

(PATTERN 2018)

Time: [1Hr]

[Max. Marks: 30]

(*) Instructions to candidates:

1) **Figures to the right indicate full marks.**
2) **Use of scientific calculator is allowed**
3) **Use suitable data where ever required**

Q1 a) Explain the Water Treatment Flow diagram for River as a source with considerable pollution. 4 M

b) Design Cascade type of aerator for treating a flow of 6 MLD. Consider the velocity of flow through inlet pipe is 1 m/s. Assume the suitable data which is not given. Draw a final diagram showing all the details. 6 M

OR

b) Design a Paddle type of a flocculator for a flow of 6 MLD. Consider the detention time as 20 minutes. Assume suitable data. Draw the final figure of design. 6 M

Q2 a) Explain the factors affecting the disinfection process and Chick's Law of Disinfection. 4 M

b) Design six units of slow sand filter for the following data. 6 M

i) Population to be served= 60,000 persons
ii) Per capita water demand= 150 lit/person/day
iii) Rate of filtration= 180 lit/hr/m2
iv) L/B= 2
v) Maximum Demand= 1.8*Average daily demand
vi) Out of six units, one unit will act as stand by.

Draw its layout.

OR

b) Design a set of rapid sand filters for treating water required for a population of 80,000. Rate of water supply= 200 lit/hr/day. The filters are rated to work at 5000 lit/hr/m2. Show the arrangement of filter units. Assume suitable data which is not given. 6 M

Q3 a) Explain Automation in Water Supply Scheme in Smart City. 4 M

b) Explain the Carbon Adsorption Technique towards the removal of Taste and Odor from water. 6 M

OR

b) Classify the Membrane Techniques used to removal of Dissolved Salts from water. 6 M
