

Reg. No. :

--	--	--	--	--	--	--	--	--	--	--	--

Question Paper Code : 80253

B.E/B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2021.

Fifth Semester

Civil Engineering

CE 2304/10111 CE 504/ CE 53 – ENVIRONMENTAL ENGINEERING – I

(Regulations 2008/2010)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are the components of a water supply (scheme) system?
2. What are the acceptable quality standard as per BIS10500 1983 for Fluoride and Nitrates?
3. Define Intake Structure.
4. Distinguish between Transmission main and Distribution Main.
5. Differentiate between type-I and type-II setting.
6. Enumerate the mechanisms involved in disinfection process.
7. What is meant by adsorption isotherm?
8. List the different methods of defluoridation
9. Draw a simple schematic diagram of water treatment plant.
10. What are the requirement of water distribution system?

PART B — (5 × 16 = 80 marks)

11. (a) (i) The population of a town obtained from the census department is given below:

Year	1941	1951	1961	1971	1981	1991	2001	2011
Population	8400	13350	17000	19000	29000	32000	41500	60700

Estimate the expected population during the years 2031 and 2041 by adopting incremental increase method. Also estimate the water demand in terms of ML/d at the rate of 90 Lpcd for the year 2031 and 2041. (10)

- (ii) Mention and discuss the factors that influence per capita water demand. (6)

Or

- (b) Briefly describe the various physico-chemical characteristics of surface and ground water and state their environmental significance.

12. (a) With the help of schematic diagram, explain different type of water intake Structures. (16)

Or

- (b) How to select pumps and pipe materials for water supply systems? Explain in detail. (16)

13. (a) (i) Write a note on design of a horizontal flow type rectangular plain sedimentation tank with neat sketch. (12)

- (ii) Distinguish between flash mixer and flocculator (4)

Or

- (b) (i) Compare Slow Sand Filter and Rapid Sand Filter. (12)

- (ii) Define:

(1) Prechlorination,

(2) Post-Chlorination,

(3) Break-Point Chlorination and

(4) Super Chlorination (4)

14. (a) Write short notes on:

(i) Membrane process. (8)

(ii) Defluoridation and its impact on drinking water. (8)

Or

(b) What are the functions of aerators? Explain the different types of aerators. (16)

15. (a) Find the flow in each pipe in the Loop shown in Fig.1 Use Hardy Cross method for analyzing the Loop. Consider C_H as 110 for all pipes.

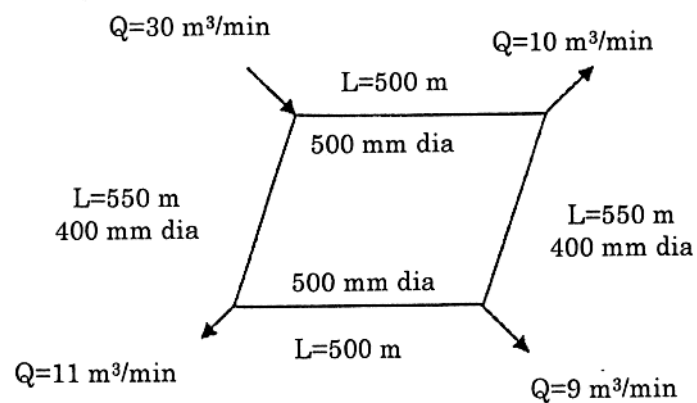


Fig. 1

Or

(b) What are the functions of service reservoir? Briefly outline the design aspects of service reservoir.
