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Roll No.

320653(20)

B. E. (Sixth Semester) Examination, 2020

APR - MAY 2022

(New Scheme)

(Civil Engg. Branch)

ENVIRONMENTAL ENGINEERING - I

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

***Note : Part (a) of each question is compulsory.
Attempt any two parts from (b), (c) and (d) of
each question.***

Unit - I

1. (a) What do you mean by per capita demand? 2
- (b) What are the factors affecting design period? 7

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- (c) Discuss briefly the different variations in the rate of water demand. What are the effect of variation in demand of water on design of various units of water supply scheme? 7
- (d) What are intake towers? Differentiate between dry and wet intake towers. 7

Unit - II

2. (a) Inlist the physical properties of water. 2
- (b) Explain in detail chemical properties of water. 7
- (c) Describe different types of settling in brief and prove that the efficiency of sedimentation process is independent of the depth of sedimentation tank. 7
- (d) Determine the quantity of alum required in order to treat 13 million litres of water per day at a treatment plant, where 12 ppm of alum does is required. Also determine the amount of carbon dioxide gas which will be released per litre of water treated. 7

Unit - III

3. (a) Define Filtration. 2
- (b) Explain in details the construction of slow sand filter. 7

- (c) Draw and explain the functioning of horizontal type pressure filter for water purification purpose. 7
- (d) Design a rectangular sedimentation tank to 1 MLD of water. 7

Unit - IV

4. (a) Which are the various types of Hardness? 2
- (b) What are the merits and demerits of lime soda process of water softening? 7
- (c) What is Fluoridation? Why it is essential mainly for softening discuss it logically? 7
- (d) Explain the various methods of distribution system. 7

Unit - V

5. (a) What are various composition of air? 2
- (b) What are causes of air pollution? 7
- (c) Explain the effect of air pollution on man and vegetation. 7
- (d) Explain the plume behaviour under various atmospheric stability conditions. 7