

6E3035

Roll No. \_\_\_\_\_

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**6E3035**

**B. Tech. VI Sem. (Main & Back) Exam., May/June-2014**

**Civil Engineering**

**6CE4 Environmental Engineering-I**

**Time: 3 Hours**

**Maximum Marks: 80**

**Min. Passing Marks: 24**

**Instructions to Candidates:-**

*Attempt any five questions, selecting one question from each unit. All Questions carry equal marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly.*

*Units of quantities used/ calculated must be stated clearly.*

*Use of following 'supporting material is permitted during examination. (Mentioned in form No. 205)*

1. \_\_\_\_\_

2. \_\_\_\_\_

### UNIT-I

- Q.1 (a) Describe environment and its various components, what is the dynamic relationship of biotic and abiotic components? [8]
- (b) What is design period? Write down design periods for pipeline, pumps, pump house and treatment plant. [8]

OR

Q.1 (a) For given data, calculate the population in 2021 by incremental increase method.

[8]

Year	1961	1971	1981	1991	2001
Population in thousands	92	135	179	225	280

(b) What are the design Capacities of intake, rising main, Sump, filter plant, C.W.R, Pumps, Service Reservoir, Distribution mains and ground level reservoirs. [8]

## UNIT-II

Q.2 (a) Compare the ground water and surface water sources in terms of yield, potential, quality and cost. [8]

(b) Explain the hydrological cycle and the ill effects of environmental pollution on the hydrological cycle. [8]

## OR

Q.2 (a) Describe the physical, chemical and biological water quality parameters as per Indian Standards. [8]

(b) What are the ill effects of excess of fluoride, Nitrate, T.D.S, Heave metals, and presence of pathogenic bacteria? [8]

## UNIT-III

Q.3 (a) Describe the process of design of a pipeline joining two villages, knowing the distance, discharge and the difference of reduced levels. Also design the pumping set. Assume any data suitably. [8]

- (b) Design a continuous flow rectangular sedimentation tank for a population of 20,000 persons with a daily per capita demand of 250 liters, assuming a detention period of 6 hours. [8]

**OR**

- Q.3 (a) Describe various types of settlings. [8]
- (b) What are the criteria of selection of pipes and pumps in a water supply project? Sketch and describe various types of pipe joints. [8]

### **UNIT-IV**

- Q.4 Sketch and explain the working and design criteria of all components of a water treatment plant. [16]

**OR**

- Q.4 (a) Describe the disinfection of water by chlorination. How do you decide the dose of chlorine? [8]
- (b) What are the main differences in slow sand and rapid gravity sand filters? [8]

### **UNIT-V**

- Q.5 (a) Describe the method of determination of capacity of a service reservoir by mass curve method. [8]
- (b) Sketch and describe the house connection and the pressure requirement at ferrule for different heights of buildings. [8]

**OR**

- Q.5 (a) Describe the handy cross method of distribution pipe network analysis with a suitable example. [8]
- (b) Describe the various water distribution systems and compare them. [8]
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