6E3035

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B.Tech VI Sem. (Main & Back) Exam. May. 2013

Civil Engineering

6CE4 Environmental Engg-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 suitably be assumed and stated clearly.*

Units of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination.

1._____ 2._____

UNIT – I

Q.1. (a) There is no shortage of water in India, yet the water supplies are very poorly developed here. Discuss critically the above statement and give suggestion for improvement. http://www.rtuonline.com [8]

(b) For a city of a population 5,00,000, find the following in connection with the water distribution system: [8]

i. Dally water demand

ii. Monthly variation in water demand

iii. Daily variation in water demand.

iv. Fire demand

OR

Q.1. (a) Why is it necessary to control the water quality in nature and also in community? What are different factors influences to domestic water use? [8]

(b) Predict the population for the years 1991, 1994, 2001 and 2011 from the following census figures of a town by ***Geometric progression*** methods. [8]

Year	1911	1921	1931	1941	1951	1961	1971	1981
Population (thousand)	60	65	63	72	79	89	97	120

UNIT – II

Q.2. (a) Briefly mention the various zones of ground- water, and point out the importance of the 'zone of saturation' in this connection. [8]

(b) Why is it necessary to control the water quality in nature and also in community? Write a note on common impurities found in water. [8]

OR

(a) State Dupuit's assumption for obtaining general equations governing ground – water flow. Derive an expression for the confined aquifer. [8]

(b) What is difference between standards and criteria? Write down the physical, chemical and biological water quality standards as per IS:10500 for drinking water. http://www.rtuonline.com [8]

UNIT – III

Q.3. (a) Why are the pressure pipes most commonly used for conveying water from distant surfaces to the towns of supply? What are the drawbacks of open channels in this respect? [8]

(b) With the help of a flow diagram, describe the unit process in a municipal water treatment system. Also describe what kind of impurity will be removed after the end of each process. [8]

OR

(a) What are the different types of driving units commonly employed for running the pumping station in public water supply schemes? Explain their merits and demerits. [8]

(b) Design a rectangular sedimentation tank to treat 2 million liters of raw water per day. The detention period may be assumed to be 3 hours, depth of tank 2.5 m and L/B ratio is 3. Also suggest design support what kind of sedimentation. [8]

UNIT – IV

Q.4. (a) Draw a neat sketch of a rapid gravity filter and describe how it works. What are the advantages over the slow sand filter? http://www.rtuonline.com [8]

(b) Explain briefly the following process: [8]

i Break point chlorination

ii. Super chlorination

OR

Q.4. (a) Design a set of rapid filters for treating water required for a population of 50,000; the rate of supply being 150 liters per day. The filters are rated to work 5,000 liters per square meter. [8]

(b) What do you mean by 'disinfection' in treating public water supply? What are the chemicals which are used as disinfectants and what are their comparative merits and demerits? [8]

UNIT – V

Q.5. (a) Explain briefly the general methods of distribution of water employed in municipal water supply schemes. [8]

(b) Discuss the various types of water piping systems that may be employed in buildings for fulfilling the water demands of its residents, giving merits and demerits of each system. [8]

OR

Q.5. (a) Illustrate with sketches the different types of layouts of pipe systems in distributing water, and compare their merits and demerits. [8]

(b) Briefly discuss the design principles involved in the design of a water supply network to be laid in a multistoried residential building. [8]
