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31-5-16 -AN.

Question Paper Code : 57175

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2016

Fifth Semester

Civil Engineering

CE 6503 – ENVIRONMENTAL ENGINEERING – I

(Regulations 2013)

Time : Three Hours **Maximum : 100 Marks**

Answer ALL questions.

PART – A (10 × 2 = 20 Marks)

1. What is design period ? List any two factors influence it.
2. State the assumptions made in an incremental increase method to forecast population.
3. Draw any tow line diagrams of joints in pipe lines ?
4. How will you calculate total head in the design of pumps for water supply schemes ?
5. Define break point chlorination.
6. Differentiate disinfection and sterilization.
7. How do you remove iron and manganese from water ?
8. What do you meant by water softening ?
9. Mention the role of computer application in water distributing systems.
10. Write the various methods to find leakage in pipelines.

PART – B (5 × 16 = 80 Marks)

11. (a) Explain the laboratory procedure to determine chlorides, turbidity, sulphates and odour. **(16)**

OR

(b) (i) Explain the factors affecting the per capita demand of a town. **(8)**

(ii) Derive an expression for determining the discharge from an unconfined aquifer under steady flow conditions. **(8)**

12. (a) (i) Explain the functioning of a jet pump with neat sketch. **(8)**

(ii) Discuss the factors influencing the selection of a pump. **(8)**

OR

(b) What is intake structure ? Explain with neat sketches, the various type of intake structures based on sources. **(16)**

13. (a) Find the area of rapid sand filter required for a town having a population of 80,000 with an average rate of demand 180 lpcd. Assume suitable data for design. Draw the cross section of the designed filter. **(16)**

OR

(b) (i) Explain the sedimentation process used in water treatment plant. **(8)**

(ii) Draw the longitudinal section of a sedimentation tank indicting the various zones. **(8)**

14. (a) Write short notes on : (i) Desalination process, (ii) Membrane process. **(8 + 8)**

OR

(b) (i) Explain the activated carbon treatments and pollutants removed and advantages of the process. **(8)**

(ii) Explain the techniques involved in de-fluoridization. **(8)**

15. (a) (i) Explain the Hardy-Cross method of distribution network analysis. **(8)**

(ii) Write short notes on the detection and prevention of wastage of water. **(8)**

OR

(b) Discuss the various possible water distribution arrangements in multi-storaged buildings. **(16)**