Total number of printed pages – 4   **B. Tech**
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CPCE 8309

Sixth Semester Examination – 2008

WATER SUPPLY AND SANITARY ENGINEERING

Full Marks – 70

Time : 3 Hours

*Answer Question No. **1** which is compulsory and any **five** from the rest.*

The figures in the right-hand margin indicate marks.

1. Explain in brief :   2×10

   (i)   Roughing filter

   (ii)   Rotating Biological Contactor

   (iii) Negative head

   (iv)   MLSS

   (v)   Super chlorination

(vi)   Return sludge

(vii) Roughing filter

(viii) Step aeration

(ix)   Flow through period

(x)   Sewage sickness.

2. (a) What is the purpose of coagulation in water ?   2

   (b) A water treatment plant treats 10 MLD of water and uses ferrous sulphate at the rate of 12 mg/l. Determine the quantities of ferrous sulphate and lime needed in the plant daily. [Al-27, S-32, O-16, Ca- 40].

                                        8

3. Design a sedimentation tank to treat 6 MLD of water. Assume any data needed. Draw a sketch of the tank and show the inlet and outlet arrangements.   10

4. (a) Explain the process of break point chlorination as used in water treatment.   5

(b) Compare and contrast- Slow sand and Rapid gravity filters.   5

5. (a) How do you determine (i) Chloride (ii) Turbidity in a sample of water ?   5

(b) An effluent from an industry is discharged at 0.5 m^3/sec with a BOD of 75 mg/l to a river where the flow is 30 m^3/sec. The BOD in the river is 4.0 mg/l. Considering a mass balance approach, determine the BOD after mixing of the industrial effluent with the river water.   5

6. (a) Explain the fluctuation of in the quantity of sewage.   5

(b) If the BOD (5 day – 35 ^{0}C) is 250 mg/l, find its 3 day – 30 ^{0}C BOD.   5

7. How would you determine the efficiency of an ideal primary clarifier ? Give an expression for it. A large or shorter detention period is to be adopted and why ?   10

8. (a) Explain the working of an activated sludge process.   5

(b) Briefly explain various methods of sewage disposal.   5

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