

Department of Civil Engineering
May / June 2014 Important Questions
CE2354 Environmental Engineering – II



1. a) Describe the various types of screens. (8)
 b) Design a screen for an average flow of $0.3 \text{ m}^3/\text{sec}$. (8)

2. a) BOD of sewage incubated for one day at 30°C has been found to be 120 mg/lit . What will be the 5 day 20°C BOD if K at 30°C is $0.16/\text{day}$. (8)
 b) Explain the characteristics of sewage. (8)

3. (a) Explain the plumbing system provided in building with a neat sketch and state its merit and demerit (10)
 (b) Write a note on anti syphonage system with sketch. (6)

4. A town has a population of one lakh persons with a Per capita water supply of 200 lpcd . Design a sewer running 0.7 times full at maximum flow condition. Take $n = 0.013$, Slope 1 in 500 and peak factor of 3. (16)

5. a) Draw a neat sketch of horizontal flow sedimentation tank and mark the salient features. (6)

 b) Design a rectangular sedimentation tank for treating $4.5 \text{ Million liters per day}$ adopting L: B ratio as 2, overflow rate $20 \text{ m}^3/\text{d. m}^2$ and Detention time of 3 hours. (10)

6. Design a circular sedimentation tank to treat an average sewage flow of $5000 \text{ m}^3/\text{day}$, suitably assuming the design criteria. Draw a neat sketch of designed tank. (16)

7. Explain with sketch the treatment of sewage by activated sludge process. Mention the advantages and disadvantages of the process. (10)
 (b) Explain briefly the working principle of waste stabilization pond. Mention their classification. (6)

8. a) Design a Septic tank with a soak pit for a hostel with a population of 150 and a peak discharge of 205 lit/minute . Take desludging Period as one year. Assume suitable design data and draw a neat sketch of the designed tank. (10)
 (b) Give the advantage and disadvantage of septic tank (6)

9. (a) Explain about oxygen sag curve and its importance. (8)
 (b) Discuss the principle of self purification process of stream and factors influencing the process. (8)

10. A large stream has a rate of reaeration constant of 0.24 per day (to base 10) and deoxygenation constant of 0.1 per day (to base 10). The initial deficit of the mixture of stream and waste water at a point of reference $D_0 = 4.0 \text{ mg/lit}$. and the ultimate 5 day BOD, $L_0 = 35 \text{ mg/lit}$. Calculate the D.O deficit at a point one day from the point of reference. Also calculate critical deficit and critical time. (16)