Question Paper Code : 91315

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2019

Sixth Semester

Civil Engineering

CE 6605 : ENVIRONMENTAL ENGINEERING – II

(Regulations 2013)

(Common to PTCE 6605 – Environmental Engineering II for B.E. (Part-Time)
– Fifth Semester – Civil Engineering – Regulations – 2014)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions.

PART – A   (10×2=20 Marks)

1. Define a) Sullage, b) MINAS.

2. What is meant by Population equivalent ?

3. Define small bore systems.

4. Write the objective of screen chamber.

5. State the objectives of grey water harvesting.

6. What are the objectives of primary treatment of sewage ?

7. What is oxidation ditches ?

8. What is the principle of UASB ?

9. What are the methods of sludge conditioning ?

10. What are the objectives of sludge dewatering ?

PART – B   (5×13=65 Marks)

11. a) Enumerate and explain the various physico-chemical characteristics of sewage and state their environmental significance..

(OR)

b) Explain the various sources of wastewater and their effects on environment.

12. a) Design a sewer running 0.7 times full at maximum dischàrge for a town provided with the separate system serving a population of 1 Lakh. Water is supplied from the water works at a rate of 200 litres per capita per day. Take a constant value of n = 0.013 at all depths of flow. The permissible slope is 1 in 600. Take peak factor of 2.25. Assume 80% of water turns as sewage.

(OR)

b) Explain the step by step procedure for laying and testing of a sewer line.

13. a) i) Explain briefly the operation and maintenance of Sewage Treatment Plants. **(7)**

ii) Design a primary clarifier of full scale STP with ASP for an average sewage flow of 12 Mld. Assume suitable date if necessary. **(6)**

(OR)

b) Explain with neat sketch component parts, functioning advantages and disadvantages of septic tank. Also discuss various methods of disposal of septic tank effluent. **(13)**

14. a) Determine the size of a high rate Trickling Fitter for the following data :

Sewage flow = 6 Mld

Recirculation Ratio = 1.5

BOD of Raw Sewage = 230 mg/l

BOD removal in PST = 30%

Final BOD effluent = 20 mg/L.

(OR)

b) i) Explain the Reclamation and Reuse of Sewage. **(6)**

ii) Discuss in detail about waste stabilization pond. **(7)**

15. a) Explain the factors affecting self purification of surface waters.

(OR)

b) Explain the different methods of sludge dewatering.

PART – C **(1×15=15 Marks)**

16. a) i) Discuss any one recent advancement in Sewage Treatment. **(7)**

ii) Explain the factors affecting characteristics and composition of sewage. **(8)**

(OR)

b) i) Explain about Sludge Disposal methods. **(8)**

ii) Discuss about the Bio-gas treatment and its advantages. **(7)**