Code No: **RT41011** **R13** **Set No. 1**

IV B.Tech I Semester Supplementary Examinations, February - 2019

ENVIRONMENTAL ENGINEERING – II

(Civil Engineering)

Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any THREE questions from Part-B
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PART–A *(22 Marks)*

1. a) Define Sewerage and combined sewer. [3]
   b) What are the different components of pumps? [4]
   c) Define pH of water. [3]
   d) What are the characteristics of fluidized bed reactors? [4]
   e) List out the purpose of usage of membrane reactors. [4]
   f) List out the methods of disposal of sewage. [4]

PART–B *(3x16 = 48 Marks)*

2. a) Explain about the estimation of sewage flow and storm water drainage. [8]
   b) Discuss about the collection and conveyance of waste water. [8]

3. a) Explain briefly about the requirements of pumping stations. [8]
   b) Describe briefly about one pipe system in plumbing. [8]

4. a) Design a circular sewage sedimentation tank for a town having population of 40,000. The average water demand is 120 lts/capita/day. Assume that 70% water reaches at the treatment unit and the maximum demand is 2.7 times the average demand? [8]
   b) Explain briefly about the Grit chambers. [8]

5. a) Describe briefly about the types of trickling filters. [8]
   b) Design a high rate trickling filter plant to treat settled domestic sewage having BOD of 200mg/L for an average flow of 22 mLd to satisfy an effluent BOD_5 of 10mg/L. Adopt peak factor as 2.25. [8]

6. a) Explain briefly about Imhoff tanks. [8]
   b) Design an Imhoff tank to treat the sewage from a town with 40,000 population. The suspended solids in the influent sewage are 130ppm. The water content of the sludge is 5%. If the rate of sewage flow is 135 lts/capita/day. Design the tank with two months storage. [8]

7. a) Write short notes on characteristics of sludge. [8]
   b) Describe briefly about the disposal of sludge in water bodies. [8]

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