Code No: **R32012**   **R10**   **Set No. 1**

III B.Tech II Semester Supplementary Examinations, April - 2018
WATER AND WASTEWATER ENGINEERING
(Civil Engineering)

Time: 3 hours   **Max. Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks
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1 a) What are water quality objectives? Write short notes on water borne diseases. [7M]
   b) Explain population forecasting methods. [8M]

2 a) Explain Mass Curve Method for determining the capacity of a service reservoir. [8M]
   b) What is an intake? With a neat sketch describe reservoir intake. [7M]

3 a) Describe the layout and general outline of water treatment units. [8M]
   b) Explain the principle of sedimentation. Write the design factors for sedimentation tank. [7M]

4 a) Distinguish between Slow sand filter and Rapid sand filter. [8M]
   b) Explain water softening methods. [7M]

5 a) Determine the ultimate first stage BOD of a waste whose 5-day BOD at 20degrees centigrade is 200mg/l. Assume the reaction rate constant $k_1 = 0.2$ days^{-1} [8M]
   b) Differentiate between conservancy and water carriage systems. [7M]

6 a) With a neat sketch describe a manhole. [8M]
   b) Describe one pipe and two pipe systems of plumbing. [7M]

7 Explain biological treatment methods for wastewater. [15M]

8 a) A rectangular sedimentation basin is to be designed for a flow of 4.5 mld using a 2:1 length to width ratio, an overflow rate of 0.00023 m/sec and a detention time of 3 hours. What are the dimensions of the basin? [8M]
   b) What are oxidation ponds? What is the principle involved in treatment. [7M]

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