Code No: **R32012**

R10

Set No. 1

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

Answer any FIVE Questions
All Questions carry equal marks
*****

1 a) What do you understand by the term 'per capita demand'? How is it estimated? [8]

   b) How do you judge the quality of given water sample? Explain in brief. [7]

2 a) What are infiltration galleries? State the purpose served by them in water distribution system. [8]

   b) Give the detailed classification of Water Meters along with their merits and demerits. [7]

3 a) Differentiate in the principles of working of a horizontal flow sedimentation basin and a vertical flow clarifier. [8]

   b) Calculate the important dimensions of a mixing unit flocculating unit and circular settling tank unit intended to treat a design discharge of 15MLD. [7]

4 a) Explain the working principle of Pressure filters with neat sketch. [8]

   b) What is the recommended minimum free chlorine residual to ensure disinfection of water at pH of 7.5? If a chlorine dosage of 1.2mg/l is required to maintain this minimum residual, what is the chlorine dosage in kg per million liters of water chlorinated? [7]

5 a) Distinguish between the following: [8]
         (i)   Conservancy and water carriage system
         (ii)   Separate and combined systems of sewage

   b) The BOD of sewage incubated for one day at 30°C has been found to be 130mg/lt. What will be the 5-day BOD at 20°C? Assume K=0.12 per day at 20°C. [7]

6 a) State the functions of Manhole. Describe with the help of neat sketches the components of a manhole. [6]

   b) What do you understand by Oxygen – Sag Curve? Derive Streeter-Phelps equation. [9]

7   Define grit chamber. Design a rack and screen chamber for a peak discharge of 225Mld (3 x average sewage flow of 75 Mld) with the following data:
Diameter of incoming sewer = 1.65m; depth of flow in sewer at peak flow = 1.15m; velocity of flow in sewer at peak design flow = 1.25m/s; drop of screen chamber flow with respect to sewer invert = 0.09m; clear spacing between bars = 27.5mm. [15]

8 a) Explain briefly the type of treatment achieved in Septic Tank. Describe the criteria used in the design. [9]

   b) Distinguish between an Oxidation Ditch and an Oxidation Pond. [6]

-000-

|''|''|||''|'''|||'|