

M.Sc.- II (Environmental Science) (CBCS Pattern) Sem-III  
**PSCENVT10 - Paper-X - Core-X : Waste Water Treatment**

P. Pages : 1

Time : Three Hours



**GUG/W/22/11261**

Max. Marks : 80

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- Notes : 1. All questions are compulsory and carry equal marks.  
2. Illustrate the answer with suitable diagrams and examples.

**1. Describe in brief chemical tests for sewage analysis. 16**

**OR**

- a) Explain fundamentals of wastewater. Add a note on concept of treatment. **8**  
b) How quantity of wastewater is measured? **8**

**2. Describe design of waste stabilization pond and trickling filter tank in detail. 16**

**OR**

- a) State how the evaluation and selection of design flow rate in plant is carried out. **8**  
b) Explain design of equalization tank with neat diagram. **8**

**3. Discuss necessity and principle of coagulation. Explain different types of coagulants with their action. 16**

**OR**

- a) Describe objectives and classification of wastewater treatment methods. **8**  
b) Explain operation process of plain sedimentation tank. **8**

**4. Discuss trickling filter w.r.t its theory, working and design aspects. 16**

**OR**

- a) Briefly explain aeration pond and aerobic pond. **8**  
b) State the methods for removal of suspended solids and dissolved solids in wastewater treatment. **8**

- 5.** a) What is population equivalent? **4**  
b) Explain concept of mass load **4**  
c) State the different types of screens. **4**  
d) Discuss treatment of wastewater in cement industry. **4**

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