

Roll No.

Total Pages : 03

BT-7/D-19

37047

**SEWERAGE & SEWAGE TREATMENT
CE-407E**

Time : Three Hours]

[Maximum Marks : 100

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit.

Unit I

1. (a) Explain the three types of Sewerage System with their advantages and disadvantages. **10**
- (b) Narate the importance of Sanitation and its role in making people healthy. **10**
2. (a) Explain the following formulae used in designing of sewerage system :
 - (i) Kutter's Formula
 - (ii) Bazin's Formula
 - (iii) Manning's Formula
 - (iv) William-Hazen's Formula
 - (v) Chezy's Formula **15**
- (b) What is HMD ? Calculate HMD in circular sewer running full and partially full. **5**

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Unit II

3. Write in detail about :
 - (a) Total Solids
 - (b) Chemical Oxygen Demand
 - (c) Dissolved Oxygen
 - (d) Oil and Grease. **20**
4. (a) Write the standards for discharge of sewage and industrial effluents in Water Source : **10**
 - (i) BOD
 - (ii) Temperature
 - (iii) pH value
 - (iv) Lymanides
- (b) How BOD Test is performed ? Explain about BOD₅ Test in detail. **10**

Unit III

5. (a) Explain types of treatment processes in detail with one process in each type. **10**
- (b) Give the construction and operation of trickling filters with neat diagram. **10**
6. (a) Write about the construction and working of Septic Tank. **10**
- (b) Define activated sludge process. Explain operation of activated shedge process with the help of flowsheet. **10**

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Unit IV

7. (a) What are the zones of pollutions in a river stream ?
10
- (b) What is Sewage Sickness ? Write the preventive measures to restrict sewage sickness. 10
8. Write short notes on the following :
- (a) Sewage Farming (b) Dillution and Dispersion
(c) Sedimentation (d) Reduction. 20

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