BT-7/M-20   **37236**

SEWERAGE AND SEWAGE TREATMENT
CE-407N

Time : Three Hours]   [Maximum Marks : 75

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

Unit I

1. (a) What is the importance of sanitation for a locality ? Discuss about Hygiene. **8**

   (b) Explain the different systems of sewage with their advantages and disadvantages. **7**

2. (a) Explain the different shapes of sewers which shape signifies more for a average populated north Indian city. **7**

   (b) Calculate the velocity of flow and discharge in a sewer of circular section having diameter of 1 meter, laid at a gradient of 1 in 500. Use Manning's formulae taking N = 0.012. Assume the sewer is running half full. **8**

Unit II

3. (a) Differentiate between biochemical oxygen demand and chemical oxygen demand. **7**

(b) Write short notes on the following : **8**

(i) D.O.

(ii) TDS.

4. Give the permissible limits for the following parameters before disposal of effluent into surface water source :

(i) pH valve

(ii) Oil and grease

(iii) Total suspended solids

(iv) Lead

(v) Zinc. **15**

Unit III

5. (a) Discuss about the various types of treatment processes in detail with one example of each process. **10**

(b) What do you understand by Imhoff tank ? Explain its working. **5**

6. (a) Discuss the working of trickling filters with the help of neat diagram. **8**

(b)	What are stabilization ponds ? Discuss in detail with the help of diagram.	**7**

Unit IV

7.	(a)	Draw and explain the oxygen deficit curve for a river receiving discharge of sewage.	**8**

(b)	Explain the process of disposal by dilution.	**7**

8.	Explain in detail the following terms :
(i)	Sewage Forming
(ii)	Reduction
(iii)	Oxidation.	**15**