

**B.Tech. Civil (Construction Management) /  
B.Tech. Civil (Water Resources Engineering)**

**Term-End Examination**

**December, 2018**

00083

**ET-507(A) : POLLUTANTS AND WATER  
SUPPLY**

*Time : 3 hours*

*Maximum Marks : 70*

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*Note : Attempt any five questions. All questions carry equal marks. Use of scientific calculator is allowed.*

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1. (a) What do you understand by Greenhouse effect ? Discuss it's impact on global environment. 7
- (b) With the help of suitable diagram describe the working of fabric filter. 7
2. (a) What is Biochemical Oxygen Demand (BOD) ? With the help of suitable diagram distinguish between carbonaceous demand and nitrification demand. 7
- (b) What is peak water demand ? How does it affect the design of water supply system ? Sketch the fluctuations in the demand for typical Indian conditions. 7

3. (a) Prove that surface loading rather than the detention period govern the design of ideal settling tanks. Mention the assumptions made in the theory. 6
- (b) Compare slow sand and rapid sand filters with reference to the following : 8
- (i) Rate of filtration
  - (ii) Under drainage system
  - (iii) Loss of head
  - (iv) Method of cleaning
4. (a) Discuss the factors that influence the disinfection efficiency of chlorine. 7
- (b) With the help of neat sketch describe the working of zeolite water softener. 7
5. (a) Examine the statement "Although the gravitational system is always to be preferred to a pumping scheme, still the latter is often an economical way of obtaining the supply." Also enumerate the factors responsible for the selection of pumping plant. 8
- (b) What is an equivalent pipe ? How would you find the equivalent size of a compound pipe ? 6

6. (a) Name the various types of layouts used in water distribution system. With the help of a neat sketch explain any one type. 7

(b) Two pipes are connected in parallel between two reservoirs with lengths 2000 metres and diameter 1.2 m and 1.0 m respectively. If the Darcy's co-efficient ( $4f$ ) is 0.026 for the larger pipe and 0.019 for the smaller one, find the total discharge, if difference in elevation is 4.0 metres. 7

7. Write short notes on any **four** of the following :  $4 \times 3 \frac{1}{2} = 14$

(a) Ozone Layer Depletion

(b) MPN Test

(c) Infiltration Galleries

(d) Jar Test

(e) Spigot and Socket Joint

(f) Sanitary Landfill

(g) Bib Cock