

**III B.Tech II Semester Examinations, December 2010**  
**ENVIRONMENTAL ENGINEERING-I**  
**Civil Engineering**

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions  
 All Questions carry equal marks

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1. (a) What is turbidity and how turbidity is measured using Jackson turbidity water.  
 (b) Explain about the physical water quality parameters and their standards for potable water. [8+8]
2. (a) Design a plain sedimentation link for a town with a population of 50000 provided with per capita water supply of 200lit. Assume surface over flow rate as  $20 \text{ m}^3/\text{m}^2/\text{day}$ .  
 (b) Draw the neat sketch of a circular radial up flow plain sedimentation link and identify the various components. [8+8]
3. (a) Explain the Hardy Cross method used for pipe network analysis in water distribution system.  
 (b) A pipe net work consists of the following pipes:

Pipe	Lenth (metre)	Diameter (cm)	Friction factor
AB	400	30	0.014
BC	600	30	0.010
AD	500	40	0.012
DC	500	25	0.011

If flow at A is  $1.0 \text{ m}^3/\text{sec}$ , while outflows at B,C and D are 0.3, 0.5 and  $0.2 \text{ m}^3/\text{sec}$ , respectively, find the flow in each pipe taking only one trail. The pressure at A is 100 m of water. [8+8]

4. Write short notes on the following:

- (a) Humus tank
- (b) Contact bed
- (c) Dunbar filter
- (d) Bio-filter.

[4+4+4+4]

5. Write short notes on:

- (a) Estimating the design sewage discharge;
- (b) Design periods for different components of a sewerage scheme;
- (c) Per-capita sewage; and

- (d) Time variations in sewage flow, and their effects on design of sewer capacities. [4+4+4+4]
6. Give the typical values of some of the important parameters such as TDS, Chloride, Color, Turbidity, Suspended Solids, M.P.N., Organic matter, Mercury, Arsenic etc. in a River, Open well, Tube well and Infiltration Galley. Also, mention the capacity of these sources in cu.m./day, hence, discuss the suitability of these sources for supplying water to a municipality. [16]
7. (a) Design and sketch a septic tank and soak pit for 100 people.  
(b) What is the mechanism of waste treatment in an oxidation pond. [8+8]
8. (a) What are the advantages and disadvantages of using multimedia filters over conventional send filters.  
(b) Explain in detail with the help of a neat sketch how backwashing is done in cex of repid send filters. [8+8]

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Code No: R05320102

**R05**

**Set No. 1**

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