

00245

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

**Term-End Examination
December, 2012**

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

Time : 3 hours

Maximum Marks : 70

Note : Answer any five questions. All questions carry equal marks. Assume any data suitably if necessary. Use of scientific calculator is permitted.

1. (a) Discuss the effects of following air pollutants on environment. 2x4=8
 - (i) SPM
 - (ii) CO
 - (iii) NO_x
 - (iv) Oxidants
- (b) With the help of suitable diagram describe the working of Fabric Filter. 6

2. (a) With the help of schematic diagram discuss the interrelationship of Air, Water and Land pollution. Also differentiate amongst "Refuse", "Garbage" and "Trash". 5+3=8

- (b) A 20 ml sample of water mixed with dilution water to fill the BOD bottle of 300ml was found to have an initial DO of 8.0 mg/lit ; and after 5 days of incubation it's DO was 5.0 mg/lit, compute its BODs at 20°C. 6
3. (a) What do you understand by the term "Biochemical Oxygen Demand (BOD)". With the help of suitable diagram distinguish between first stage and second stage BOD. 3+5=8
- (b) What do you mean by "Virological quality of water" ? What precautions will you take while collecting water samples for laboratory examination ? 3+3=6
4. (a) A city has population of 2,00,000. Calculate the following water requirements for an average consumption of 150 lit per capita per day. 4x2=8
- (i) Average daily demand
- (ii) Maximum daily demand
- (iii) Maximum hourly demand
- (iv) Fire demand
- (b) What are the characteristics of Ideal settling basin ? Prove that "area" and "overflow rate" rather than detention period govern the design of settling tank. 6

5. (a) Define "Flocculation" and differentiate between "perikinetic" and orthokinetic" flocculation. 7
- (b) With the help of neat sketch describe the working of horizontal flow filters. 7
6. (a) Discuss the relative merits and demerits of 'Lime-Soda process' and 'Zeolite process' of water softening. 7
- (b) With the help of line diagram discuss the working of double-acting reciprocating pumps. 7
7. Write short notes on *any four* of the following : **4x3½=14**
- (a) Sanitary landfill
- (b) Ozone layer depletion
- (c) Water quality for fishing
- (d) Jar-test
- (e) Super chlorination
- (f) Air valves
- (g) Equivalent pipe.
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