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ET-507(A)

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

00310

Term-End Examination

June, 2014

ET-507(A) : POLLUTANTS AND WATER SUPPLY

Time : 3 hours *Maximum Marks : 70*

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

1. (a) What is Green House Effect ? What are different green house gases ? Briefly describe impacts of green house effect. 7

(b) Describe various sources of solid waste generation in a city. Also, describe the types of solid wastes from each of these sources. 7

2. (a) Describe the significance and permissible limits of the following water quality parameters : 7

(i) Alkalinity

(ii) Hardness

(iii) Chlorides

(iv) Fluoride

(b) What are the important points to be considered while collecting water samples for laboratory tests ? 7

3. (a) What do you understand by "Design Period" in the context of water supply schemes ? Describe various factors affecting Design Period. 7

(b) What is meant by per capita demand of water ? Describe various factors affecting per capita demand. 7

4. (a) Design a rectangular sedimentation tank using the following data : 7

Population = 60,000; Average demand = 135 lpcd; Detention Period = 4 hours; Velocity of flow = 0·2 m/min.

(b) With the help of a neat sketch describe the working of pressure filter. Also, describe its merits and demerits. 7

5. (a) Calculate the capacity of a service reservoir required to meet the demand as shown below, if pumping is carried out at uniform rate for 24 hours : 7

Time (hours)	Demand ($\times 10^6$ lit.)
00 – 04	0·49
04 – 08	0·86
08 – 12	1·23
12 – 16	1·10
16 – 20	0·80
20 – 00	0·56

(b) With the help of a neat sketch, explain the principle and operation of a centrifugal pump. 7

6. (a) Draw a neat sketch of a service connection from street to a residential building and describe the functions of each fitting. 7

(b) Compare the advantages and disadvantages of continuous and intermittent systems of water supply. 7

7. Write short notes on any ***four*** of the following :

$4 \times 3\frac{1}{2} = 14$

(i) Venturi scrubber

(ii) Water-borne diseases

(iii) Pre-chlorination

(iv) Jar Test

(v) Priming of Pump

(vi) Water Meter