ET-507(A)

01992

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

Term-End Examination

June, 2013

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 causes of ozone layer depletion and its effects on Global Environment.   7

   (b) Describe the Gaussian Model for the dispersion of Air pollutants and also give it's limitations.   7

2. (a) List the most commonly employed methods for the disposal of solid wastes and enumerate any one of these methods in detail.   7

   (b) 'The best approach of the problem of solid waste management requires measures to reduce its quantity '. Discuss.   7

3. (a) What is an unconfined aquifer ? Derive an   7
        expression for the determination of
        discharge from it.

    (b) Determine the future population of a   7
        satellite town by Geometric increase method
        for the year 2031, given the following data.

Year	1971	1981	1991	2001	......
Population (in Thousand)	93	111	132	161	......

4. (a) Define chemical oxygen demand (COD).   7
        Why COD is always higher than BOD for
        the same water sample ?

    (b) Laboratory analysis of a raw water sample   7
        indicated an ultimate BOD of 200 mg/lit
        and rate constant (k) of 0.20 /d at 20°C
        Calculate the 5 day BOD at 20°C and
        30°C and also the rate constant (k) at
        30°C.

5. (a) Differentiate between coagulation and   7
        Flocculation. What is the importance of
        JAR - test ?

    (b) What is meant by disinfection in the context   7
        of water treatment ? Discuss the factors
        influencing the disinfection efficiency.

6. (a) What is difference between gradual and   9
        sudden closure of the valve fitted at
        discharge end of the pipe running full of
        water ? Derive an equation for the pressure
        rise in the pipe due to sudden closure.

    (b) List the different types of layouts of pipe   5
        systems used in the distribution of water
        and discuss any one of these with the help
        of neat sketch.

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

    (a) Water related disease $4 \times 3\frac{1}{2} = 14$

    (b) Carbonate hardness in water

    (c) Pressure Filter

    (d) Reverse osmosis

    (e) Hydraulic RAM

    (f) Spigot and socket joint

    (g) Water Meter.

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