P169

APR -17/ TE/Insem.-5

T.E. (Civil)

ENVIRONMENTAL ENGINEERING - I

(2012 Course) (Semester-II)

Time : 1 Hour]   *[Max. Marks : 30*

Instructions to the candidates:

1) *Attempt Q.1 or Q.2, Q.3 or Q.4, and Q.5 or Q.6.*
2) *Figures to the right indicate full marks.*
3) *Use of logarithmic tables, slide rule, Mollier charts, electronics pocket calculator and steam tables are allowed.*
4) *Neat diagrams must be drawn wherever necessary.*
5) *Assume suitable data if necessary.*

Q1) a) If concentration of SO_2, CO and NO_2 are 1000 ppm, 4000 ppm and 500 ppm respectively. What are their concentration in $\mu g/m^3$ at 25°C and 760mm of Hg pressure. **[5]**

     b) What is Inversion? Discuss various types of Inversions. **[5]**

OR

Q2) a) Discuss various Noise control Techniques. Also write down the permissible noise levels for various category of area. **[5]**

     b) Calculate resultant noise level in a workshop having 15 machines and each machine produces a noise of 75 dB. **[5]**

Q3) a) Explain various points to be considered while selecting the site for intake structure. **[5]**

     b) Enlist various types of Valves. Discuss use of each type in detail. **[5]**

OR

Q4) a) Find the fire demand for a City having population of 20 Lakh by various formulae. **[5]**

     b) What is population forecasting? Mention methods of population forecasting. Explain Various formulae of population forecasting with their meaning. **[5]**

P.T.O.

Q5) a) Explain in detail laboratory test performed for determination of Hardness. **[5]**

b) Design the cascade type circular aerator with the following data. **[5]**

     i) Quantity of water flowing over aerator per day = 120×10^6 lit/day.

     ii) Loading Rate = 0.03 m^2/m^3/Hr.

     iii) Velocity of flow in collecting channel = 1m/s.

OR

Q6) a) Prove that efficiency of removal of particles of given settling velocity is inversely proportional to the surface loading rate. **[5]**

b) A rectangular sedimentation tank of size 17.5m × 5.5m × 3.5m is treating 2.5×10^6 lit/day of water. If 80 ppm suspended impurities are present in the water, assuming 70% removal takes place in sedimentation tank and specific gravity as 2.0, Determine,

     i) Average flow of water through the tank.

     ii) Detention time.

     iii) Deposition of impurities in the tank.

     iv) Overflow rate. **[5]**

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