P112

APR. -16/TE/Insem. - 5

T.E. (Civil)
ENVIRONMENTAL ENGINEERING - I
(2012 Course) (Semester - II)

Time : 1½ Hour]   *[Max. Marks :30*

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

Q1) a) Convert the following sound pressures into decibel units: **[6]**

   i)   P = 0.4 microbar

   ii) p = 40000microbar

   iii) P = 0.0004 microbar

   iv) P = 40 microbars

   v)   P = 0.04 microbar

   vi) P = 0.004 microbar

  b) Write a note with a neat sketch on : Electrostatic precipitator.   **[4]**

<div align="center">OR</div>

Q2) a) Define 'Plume'. Explain the various conditions of plume with sketch.**[6]**

  b) Explain the following effects of noise on human:

   i)   Audiological and

   ii) Physiological   **[4]**

P.T.O.

Q3) a) Following is the population data for a town. Water supply scheme is to be designed for this town with a design period of 30 years. Find the population at the end the year 2040 by incremental increase method. **[6]**

Year	1970	1980	1990	2000	2010
Population	40,000	47,000	55,000	60,000	72,000

b) Explain canal intake with a neat sketch. **[4]**

OR

Q4) a) Explain the functions of jack well. Draw a neat sketch of jack well. **[6]**

b) Explain various factors that affect the rate of water demand. **[4]**

Q5) a) The maximum daily demand of water is 115 MLD. Design aeration fountain (cascade aerator). Consider Loading rate as 0.03 $m^2/m^3/hr$. **[6]**

b) State the HDL and MPL values as per IS10500 for drinking water with appropriate units.

   i) Nitrates

   ii) pH

   iii) Sulphates

   iv) Chlorides **[4]**

OR

Q6) a) Design a rectangular settling tank to treat 1.5 MLD of water. Assume detention time of 3 hours and flow through velocity of 0.07 m/min. Consider the depth of the tank 3 m and 0.5 m as free board. Find the overflow rate and dimensions of the tank. **[6]**

b) What are the methods of collection of sample? Explain. **[4]**

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