

Total No. of Questions :6]

SEAT No. :

P112**APR. -16/TE/Insem. - 5**

[Total No. of Pages :2

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) $p = 40000$ microbar
- 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]

OR

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 $0.03 \text{ m}^2/\text{m}^3/\text{hr}$. [6]

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

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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]

