

TE/Insem/APR-105
T.E. (Civil)
ENVIRONMENTAL ENGINEERING - I
(2015 Pattern) (Semester - II)

Time : 1 Hour]

[Max. Marks : 30

Instructions to the candidates :

- 1) Answer Q.1 or 2, Q.3 or 4, Q.5 or 6.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right side indicate full marks.
- 4) Assume suitable data, if necessary.
- 5) Use of Scientific calculator is allowed.

Q1) a) Convert the following sound pressures into decibel units: **[5]**

- i) $P = 0.6 \text{ microbars}$
- ii) $P = 60 \text{ microbars}$
- iii) $P = 0.0006 \text{ microbars}$
- iv) $P = 6000 \text{ microbars}$
- v) $P = 0.06 \text{ microbars}$

b) Enlist any 4 equipments used for collecting particulate matter. Explain with neat sketch - Settling Chamber. **[2+2+1]**

OR

Q2) a) Calculate resultant noise level produced in workshop having 15 machines and each machine producing noise of 75 dB. **[5]**

b) Define municipal solid waste management. Explain with neat sketch anaerobic digestion process for management of MSW. **[5]**

Q3) a) Draw the flow sheet of water supply scheme considering river as source. Explain function of each unit. **[6]**

b) State the HDL and MPL values as per IS:10500 for drinking water with appropriate unit, for following parameters: **[4]**

- | | |
|----------------|----------------------|
| i) pH | ii) Total Alkalinity |
| iii) Chlorides | iv) Nitrates |

OR

P.T.O.

Q4) a) Census data for a town is as follows: [6]

Year	1971	1981	1991	2001	2011
Population	20000	27000	33000	41000	50000

Estimate the population in the year 2051 by geometric increase method.

b) Explain the following terms: [4]

- i) Detention Time,
- ii) Design Period,
- iii) Average Water Demand and
- iv) Peak Water Demand

Q5) a) Explain with neat sketch, working of a tube settler. [3+1]

b) The maximum daily demand of water for a town is 125 MLD. Design Cascade aerator considering loading rate as $0.03 \text{ m}^2/\text{m}^3/\text{hr}$. Assume velocity of flow in collecting channel is 1m/sec. [6]

OR

Q6) a) Design a rectangular sedimentation tanks, which supplies 1 MLD water to the Town. The sedimentation period is 3 hrs. The velocity of flow is 12 cm/min. Depth of water in a tank is 3.5 m. [5]

b) Draw a flow sheet of conventional WTP in urban areas. Explain each unit in brief. [5]

