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SEAT No :

P169

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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 SO₂, CO and NO₂ are 1000 ppm, 4000 ppm and 500 ppm respectively. What are their concentration in µg/m³ 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]
- Quantity of water flowing over aerator per day = 120×10^6 lit/day.
 - Loading Rate = $0.03 \text{ m}^2/\text{m}^3/\text{Hr}$.
 - Velocity of flow in collecting channel = 1 m/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 $17.5 \text{ m} \times 5.5 \text{ m} \times 3.5 \text{ m}$ 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,
- Average flow of water through the tank.
 - Detention time.
 - Deposition of impurities in the tank.
 - Overflow rate. www.sppuonline.com [5]

