QP Code: **31368**

(3 Hours) [Total Marks: 80]

N.B: 1. Question No.1 is compulsory
2. Attempt any **three** questions from remaining **five** questions.
3. Assume any suitable data where ever required.
4. Figures to the right indicate full marks.

Q.1   Attempt any **four**
a. Explain effect of noise pollution with control measures.   05
b. Why sewers are designed to run partially full?   05
c. What do you understand about aerobic decomposition and anaerobic decomposition?   05
d. Define F/M and Sludge Age   05
e. Draw a neat sketch of Drop manhole.   05

Q.2 a. Calculate 2 day 37^0C BOD of sewage sample whose 5day 20^oC BOD is 150mg/lit. Assume K_D at 20^oC as 0.1   10
b. Explain the various system of plumbing.   10

Q.3 a. Explain the necessity and process mechanism of anaerobic digestion of sludge. How the solid, liquid and gaseous products of digestion are disposed off?   10
b. Describe physical, chemical and Biological characteristics of sewage and their significance in Waste water Treatment.   10

Q.4 a. Explain the modifications in the conventional sludge process. What are the draw backs of conventional activated sludge process?   10
b. Design the dimensions of a septic tank for a small colony of 150 persons provided with an assured water supply from the municipal head-works at a rate of 120 litres per person per day. Assume any data, you may need.   10

Q.5 a. Determine the size of a high rate trickling filter for the following data: 10
Flow=5.5Mld
Recirculation ratio=1.5
BOD of raw sewage=280mg/lit
BOD removed in primary clarifier=25%
Final effluent BOD desired=40mg/lit

b. Give classification of air pollutants and control measures for gaseous and particulate matter.   10

Q.6   Write short note on (any four)   20
a. Differentiate between combined and separate system of sewage
b. Sludge volume Index
c. Sludge Thickener
d. Grit Chamber
e. Anti-siphonage pipe

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