Q. P. Code : 40173

(3 Hours) **(Total Marks: 80)**

N.B: (1) Question no. 1 is compulsory.

(2) Attempt any three questions out of five questions.

(3) Assume suitable data wherever required and state it clearly.

1. Attempt any four of the following **20**
   (a) Explain oxygen sag curve.
   (b) Give the differences between aerobic and anaerobic processes.
   (c) Draw a flow sheet for conventional sewage treatment plant.
   (d) Write a short note on BOD.
   (e) Prove that 50 dB + 50 dB ≠ 100 dB.

2. (a) Design the dimensions of a septic tank for a colony of 200 persons provided with an assured water supply from the municipal head-works at a rate of 100 liters per person per day. Assume any data if required. **10**

(b) Differentiate between primary and secondary pollutants. Write a note on air pollution caused by automobiles and its control. **10**

3. (a) Calculate the discharge of 1.0m circular sewer laid at a slope of 1 in 500, When it is running half full. Assume n in manning's formula as 0.011. Draw a figure of partially filled circular sewer section. **10**

(b) Explain the process mechanism of ASP with neat sketch. **10**

4. (a) The 5 day 30^0C BOD of a sewage sample is 110 mg/lit. Calculate its 5 day 20^0C BOD. Assume KD=0.10 per day. **10**

(b) Explain any two sewer appurtenances with neat sketches. **10**

5. (a) Enlist different types of traps in plumbing. Explain any two with neat sketches? **10**

(b) Determine the size of high rate trickling filter for following data: **10**
I) Flow = 4.5 MLD II) BOD_5 of raw sewage = 250 mg/lit
III) Recirculation ratio = 1.4 IV) BOD removed in primary Clarifier = 25%
V) Final effluent BOD desired = 50 mg/lit

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6. Write short note on (any four) **20**

a) Sewage sickness

b) Crown corrosion

c) Combined & separate system of sewerage.

d) Oxidation pond

e) Population Equivalent.

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