P - 336

Seat No.	

Total No. of Pages : 2

T.E. (Part - III) (Civil) (Semester - VI) Examination, April - 2016
ENVIRONMENTAL ENGINEERING - II (Revised) (New)
Sub. Code : 66877

Day and Date : Monday, 25 - 04 - 2016 **Total Marks : 100**

Time : 03.00 p.m. to 06.00 p.m.

Instructions : 1) **All questions are compulsory.**
2) **Assume suitable data wherever necessary and mention it.**
3) **Figures to the right indicate full marks.**

SECTION - I

Q1) a) Explain with neat sketch the variation in flow and strength of municipal waste water. **[5]**

b) Draw a neat sketch of sewage pumping station and mention the function of various components. **[6]**

c) The BOD of sewage incubated for two days at 37°C is 200 mg/L. Find the standard BOD. Assume BOD rate constant as 0.20 per day, base 10, at 20°C. **[5]**

OR

c) Determine the diameter of combined sewer from following data. Area to be served- 100 Hectares, Population-50000, Water supply rate-180 lpcd, Intensity of rainfall- 20 mm/hr, Coefficient of runoff-0.45, Maximum permissible velocity-3 m/s

Q2) a) Give the design parameters of bar rack. **[4]**

b) Explain the importance of MCRT,HRT,MLVSS and F/M ratio in activated sludge process. **[6]**

c) Explain any four modifications of activated sludge process. **[6]**

OR

c) Explain the biological process in Trickling filter.

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Q3) a) Explain sludge thickening methods. [5]

b) Design an oxidation ditch for treating sewage with initial BOD_5 of 300 mg/L for contributing population of 50000 to give an effluent BOD_5 of 30 mg/L. Sewage generation rate- 150 mg/L,F/M ratio-0. 1 M LVSS-3000 mg/L. Determine volume of ditch ,Length of rotor and power required. [8]

c) Distinguish between standard rate and high rate anaerobic digesters. [5]

OR

c) Explain the principle of oxidation pond .Give the design parameters.

SECTION - II

Q4) Write short notes on any three: [18]

a) Cyclone separator

b) ESP

c) London smog

d) EIA

e) Sources of solid waste

Q5) Solve any two of the following :

a) Which are solid waste composting methods and explain one briefly? [8]

b) Explain in detail a process of land filling for solid waste management. [8]

c) Explain in detail the effects of air pollutants on man. [8]

Q6) Solve any two of the following:

a) Explain in detail DO sag curve and self purification of river. [8]

b) State various methods of solid waste collection from the City, Explain one of it in detail. [8]

c) Give the Detailed process for Pre and Post EIA [8]

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