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**T.E. (Civil) (Semester - VI) (Revised) Examination, May - 2018**  
**ENVIRONMENTAL ENGINEERING - II**

Sub. Code : 66877

Day and Date : Tuesday, 15 - 05 - 2018

Total Marks : 100

Time : 2.30 p.m. to 5.30 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) Compare with graphical representation the hourly fluctuation in municipal waste water flow with fluctuation in water demand and state the causes of fluctuation in waste water flow. [5]
- b) Explain the layout patterns of sewerage system with neat sketches. [5]
- c) The 2-day BOD of waste water sample incubated at 20°C is 200 mg/L. Determine the time required to have BOD value of 300mg/L at same temperature.

BOD rate constant 'k' is 0.18 per day base 'e' at 20°C. [6]

OR

- c) Estimate the quantity of storm water generated from following data by rational method. [6]

Area of drainage district 50 Ha. Intensity of rainfall = 20mm/hr.

Area	%Area	Runoff Coefficient
Densely built up portion	10	0.9
Area with adjoining houses	20	0.7
Area with detached houses	30	0.5
Area with few Buildings	40	0.2

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- Q2) a)** Give the design parameters of bar rack. [5]
- b) Design an ASP for treating 10 MLD of sewage flow with influent BOD 500mg/L, Determine size of aeration tank and capacity of surface aerators. F/M ratio=0.3, ML VSS=3000 mg/L. [8]
- c) Give the modifications of ASP and explain any one in detail. [5]

OR

- c) Explain the biological process in tricking filter. [5]
- Q3) a)** Explain the necessity of sludge treatment and disposed. [5]
- b) Give the constructional features and design parameters of oxidation ditch. [5]
- c) Design an aerated lagoon for treating 5 MLD flow with influent BOD = 350 mg/L. [6]

OR

- c) Design an oxidation pond to treat 2 MLD flow. Influent BOD = 300mg/L. [6]

**SECTION - II**

- Q4) a)** What are the zones of self purification of a stream? Write the actions involved in it. [5]
- b) Draw a neat sketch of DO sag curve and give the equations for each curve. [6]
- c) Give the CPCB effluent standards for stream and land disposal. [6]

OR

- c) Explain the procedure for EIA study. [6]

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**Q5) Write short notes on any three:**

**[15]**

- a) Characteristics of municipal solid waste.
- b) Aerobic Composting.
- c) Incineration.
- d) Hazardous waste management.

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**Q6) Answer any three:**

**[18]**

- a) Give the classification and sources of air pollutants.
- b) Explain the importance of atmospheric stability and mixing height in the dispersion of air pollutants.
- c) Explain with neat sketch the principle and working of cyclone separator.
- d) Explain the causes and effects of Ozone depletion.

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