

**6E6033****6E6033**

**B.Tech. VI Semester(Main) Examination, May-June 2015**  
**Civil Engineering**  
**6CE3A Environmental Engineering-II**

**Time : 3 Hours****Maximum Marks : 80**  
**Min. Passing Marks : 24****Instructions to Candidates:**

Attempt any **five** questions, selecting **one** question from **each** unit. All questions carry **equal** marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.)

**Unit - I**

1. a) Define sewage, sullage, sludge, sewer and sewerage. What are the constituents of domestic sewage? (8)
- b) Define BOD. What is  $t_{50}$  5 day BOD determination? What is the role of temperatures in BOD satisfaction? (8)

**OR**

1. a) Derive the BOD satisfaction equation  $y_t = L[1 - 10^{-kt}]$  from first principles. (8)
- b) The BOD of a sewage sample when incubated for 7 days at 30°C was 450 mg/litre. Calculate the 5 day BOD at 20°C. (8)

**Unit - II**

2. a) Describe the various systems of sewerage and the components of sewerage. How do we calculate the quantity of sanitary sewage and the peak factor? Describe the various components of sewerage system. (8)

- b) Design a sewerline to carry the sewage of a population of 50,000 persons with a rate of water supply as 200 LPCD (8)

**OR**

2. a) Describe rational method for determination of discharge of stormwater with the given data of rainfall, with suitable example (8)
- b) What is the criteria of spacing of manholes. Sketch and describe the working of drop manhole. (8)

**Unit - III**

3. a) Describe screens. What is the head lost due to screens and how the amount of screenings is estimated? Write down the design criteria of grit chambers. (8)
- b) Differentiate attached growth and suspended growth systems. Describe the activated sludge process with its modifications. (8)

**OR**

3. a) Sketch and explain the working of trickling filters. (8)
- b) Design an oxidation pond for 10000 persons at a rate of water supply as 250 LPCD for domestic sewage. The place is situated at 26°N latitude and at R.L. of 220 M above MS.L. and the average sky clearance is 65%. (8)

**Unit - IV**

4. a) Describe the self purification of streams explaining various zones and the dilution of sewage. (8)
- b) Sketch and explain the working of S trap, gulley trap and intercepting trap. (8)

**OR**

4. Write short notes on (4×4=16)
- i) Sewage farming
  - ii) Various systems of plumbing
  - iii) Waste water reuse
  - iv) Layout of house drainage

**Unit - V**

5. a) Describe the primary and secondary air pollutants, and their ill effects (8)  
b) Describe noise pollution, and the ways of reducing noise pollution. (8)

**OR**

5. Write short notes on
- i) Global warming
  - ii) Green house effect
  - iii) Acid rain
  - iv) Vehicular pollution
- rtuonline.com (4×4=16)
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