Code No: NR310104 **NR** **Set No. 2**

III B.Tech I Semester Examinations,November 2010
ENVIRONMENTAL ENGINEERING
Civil Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. Explain the nitrogen and carbon cycles of decay of organic substances. [16]

2. (a) Explain different methods of effluent disposal of septic tanks. [8+8]
   (b) Discuss the criteria for the design of a septic tank.

3. What is sewage sickness. What are the causes of sewage sickness. Give the measures that may be adopted to prevent sewage sickness. [16]

4. (a) Show that the efficiency of a sedimentation tank is independent of depth of tank.
   (b) 10 mg of copperas is consumed with lime at a coagulation basin per litre of water. Determine the quantity of copperas and the quick lime required to treat 10 million litres of water per day for one year. Molecular weight of copperas is 278 and of quick lime is 56. [8+8]

5. (a) What is a chlorinator? Explain a liquid chlorine chlorinator with the help of a sketch. [8+8]
   (b) Explain disinfection by ozone gas treatment and ultra −violet rays treatment of water.

6. Calculate the effluent BOD_5 of a two stage trickling filter with the following flows,BOD5 and dimensions, using [16]
   (a) NRC formula
   (b) Velz formula
   (c) Rankine's formula.

   Q=5500 m^3/day
   BOD_5 = 280 mg/l
   Volume of primary filter= 1200 m^3
   Volume of secondary filter = 900m^3.
   Filter depth = 2m.
   Recirculation for primary filter =1.5.
   Recirculation for secondary filter =1.25.

7. (a) Draw an hourly variation curve for demand of water for a typical Indian city and explain its significance. [8+8]
   (b) What are indicator organisms? Discuss the significance of B-Coli test for drinking water.

8. (a) What are the various steps involved in laying of water pipe line. [8+8]
   (b) Describe the various layouts of distribution network in a water supply system and state their advantages and disadvantages.

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Code No: NR310104 **NR** **Set No. 4**

III B.Tech I Semester Examinations,November 2010
ENVIRONMENTAL ENGINEERING
Civil Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. Explain the nitrogen and carbon cycles of decay of organic substances. [16]

2. (a) What is a chlorinator? Explain a liquid chlorine chlorinator with the help of a sketch. [8+8]
   (b) Explain disinfection by ozone gas treatment and ultra −violet rays treatment of water.

3. (a) Show that the efficiency of a sedimentation tank is independent of depth of tank.
   (b) 10 mg of copperas is consumed with lime at a coagulation basin per litre of water. Determine the quantity of copperas and the quick lime required to treat 10 million litres of water per day for one year. Molecular weight of copperas is 278 and of quick lime is 56. [8+8]

4. (a) What are the various steps involved in laying of water pipe line. [8+8]
   (b) Describe the various layouts of distribution network in a water supply system and state their advantages and disadvantages.

5. (a) Explain different methods of effluent disposal of septic tanks. [8+8]
   (b) Discuss the criteria for the design of a septic tank.

6. What is sewage sickness. What are the causes of sewage sickness. Give the measures that may be adopted to prevent sewage sickness. [16]

7. (a) Draw an hourly variation curve for demand of water for a typical Indian city and explain its significance. [8+8]
   (b) What are indicator organisms? Discuss the significance of B-Coli test for drinking water.

8. Calculate the effluent BOD_5 of a two stage trickling filter with the following flows,BOD5 and dimensions, using [16]
   (a) NRC formula
   (b) Velz formula
   (c) Rankine's formula.

Q=5500 m^3/day
BOD_5 = 280 mg/l
Volume of primary filter= 1200 m^3
Volume of secondary filter = 900m^3.
Filter depth = 2m.
Recirculation for primary filter =1.5.
Recirculation for secondary filter =1.25.

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Code No: NR310104 **NR** **Set No. 1**

III B.Tech I Semester Examinations,November 2010
ENVIRONMENTAL ENGINEERING
Civil Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. Explain the nitrogen and carbon cycles of decay of organic substances. [16]

2. Calculate the effluent BOD_5 of a two stage trickling filter with the following flows,BOD5 and dimensions, using [16]

   (a) NRC formula

   (b) Velz formula

   (c) Rankine's formula.

   Q=5500 m^3/day
   BOD_5 = 280 mg/l
   Volume of primary filter= 1200 m^3.
   Volume of secondary filter = 900m^3.
   Filter depth = 2m.
   Recirculation for primary filter =1.5.
   Recirculation for secondary filter =1.25.

3. What is sewage sickness. What are the causes of sewage sickness. Give the measures that may be adopted to prevent sewage sickness. [16]

4. (a) Draw an hourly variation curve for demand of water for a typical Indian city and explain its significance. [8+8]

   (b) What are indicator organisms? Discuss the significance of B-Coli test for drinking water.

5. (a) Explain different methods of effluent disposal of septic tanks. [8+8]

   (b) Discuss the criteria for the design of a septic tank.

6. (a) Show that the efficiency of a sedimentation tank is independent of depth of tank.

   (b) 10 mg of copperas is consumed with lime at a coagulation basin per litre of water. Determine the quantity of copperas and the quick lime required to treat 10 million litres of water per day for one year. Molecular weight of copperas is 278 and of quick lime is 56. [8+8]

7. (a) What are the various steps involved in laying of water pipe line. [8+8]

   (b) Describe the various layouts of distribution network in a water supply system and state their advantages and disadvantages.

8. (a) What is a chlorinator? Explain a liquid chlorine chlorinator with the help of a sketch. [8+8]

   (b) Explain disinfection by ozone gas treatment and ultra −violet rays treatment of water.

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Code No: NR310104 **NR** **Set No. 3**

III B.Tech I Semester Examinations,November 2010
ENVIRONMENTAL ENGINEERING
Civil Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Explain different methods of effluent disposal of septic tanks. [8+8]
   (b) Discuss the criteria for the design of a septic tank.
2. (a) What is a chlorinator? Explain a liquid chlorine chlorinator with the help of a sketch. [8+8]
   (b) Explain disinfection by ozone gas treatment and ultra −violet rays treatment of water.
3. (a) Draw an hourly variation curve for demand of water for a typical Indian city and explain its significance. [8+8]
   (b) What are indicator organisms? Discuss the significance of B-Coli test for drinking water.
4. (a) What are the various steps involved in laying of water pipe line. [8+8]
   (b) Describe the various layouts of distribution network in a water supply system and state their advantages and disadvantages.
5. Explain the nitrogen and carbon cycles of decay of organic substances. [16]
6. Calculate the effluent BOD_5 of a two stage trickling filter with the following flows,BOD5 and dimensions, using [16]
   (a) NRC formula
   (b) Velz formula
   (c) Rankine's formula.

   Q=5500 m^3/day
   BOD_5 = 280 mg/l
   Volume of primary filter= 1200 m^3
   Volume of secondary filter = 900m^3.
   Filter depth = 2m.
   Recirculation for primary filter =1.5.
   Recirculation for secondary filter =1.25.
7. (a) Show that the efficiency of a sedimentation tank is independent of depth of tank.

(b) 10 mg of copperas is consumed with lime at a coagulation basin per litre of water. Determine the quantity of copperas and the quick lime required to treat 10 million litres of water per day for one year. Molecular weight of copperas is 278 and of quick lime is 56. [8+8]

8. What is sewage sickness. What are the causes of sewage sickness. Give the measures that may be adopted to prevent sewage sickness. [16]

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