

**2E2004**

Roll No. \_\_\_\_\_

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**2E2004**

**B.Tech. I Year II Semester (Main) Examination - 2013**  
**204 Chemistry & Environmental Engg.**

**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) What is hardness of water? Explain hardness determination by EDTA method. (10)
- b) Standard hard water contains 15g of  $\text{CaCO}_3$  per litre. 100ml of sample water required 18ml of EDTA solution. The sample water after boiling required 12ml of EDTA solution. Calculate temporary, permanent and total hardness of sample water if 20ml of standard hard water requires 25ml of EDTA solution. (6)

**OR**

1. What is municipal water? Describe all the steps involved in getting municipal grade potable water. (16)

**Unit - II**

2. a) What is softening of water? Describe softening of water by zeolite method with diagram. (10)
- b) The hardness of 5000L of water sample was removed by zeolite softner. Zeolite softner requires 100L of NaCl solution containing 10,000mg/L of NaCl for regeneration. Determine the hardness of sample water. (6)

OR

2. Write short notes on any two of the following:

- a) Problem of scaling in boilers.
- b) Problem of Priming in boilers.
- c) Caustic embrittlement in boilers.
- d) De-ionization method of softening.

(8+8)

**Unit - III**

3. a) What are renewable sources of energy? Describe the potential of wind energy in India. (8)
- b) Explain Environmental Acts and Regulations of protecting the environment in India. (8)

OR

3. What do you mean by Environment Impact Assessment (EIA)? Describe the necessity and methodology of EIA. (16)

**Unit - IV**

4. What is solid waste management? Explain various steps involved in solid waste management. (16)

OR

4. Write short notes on any two of the following:

- a) Air pollution and its control.
- b) Noise pollution and its control.
- c) Global warming and its consequences.
- d) Sanitary landfill
- e) Acid rain and its effect.

(8+8)

## Unit - V

5. What is corrosion? Explain the mechanism of wet electrochemical corrosion and its prevention. (4+8+4)

OR

5. Write short notes on:

a) Dry Corrosion and Pilling bedsworth's rule.

b) Rain Water harvesting.

c) Waste water management.

d) Water pollution and its harmful effects.

(4×4=16)