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**GAYATRI VIDYA PARISHAD COLLEGE OF ENGINEERING FOR WOMEN****(Autonomous)**

(Affiliated to Andhra University, Visakhapatnam)

**I B.Tech. - II Semester Regular / Supplementary Examinations, July – 2026****GREEN CHEMISTRY**

[Common to CSE-AIML and ECE]

1. All questions carry equal marks
2. Must answer all parts of the question at one place

**Time: 3Hrs.****Max Marks: 70****UNIT-I**

1. a. Define Boiler trouble? Explain the mechanism of boiler corrosion and discuss the methods used to control it. **7M**  
b. Describe the Lime-Soda process for water softening with suitable chemical reactions. Mention its advantages and disadvantages. **7M**

OR

2. a. What is potable water? List out its specifications and explain the various steps involved in the treatment of potable water. **7M**  
b. Explain with a neat diagram of reverse osmosis method and its importance. **7M**

**UNIT-II**

3. a. Differentiate between Primary and Secondary batteries with suitable examples and applications. **7M**  
b. What is a VRLA (Valve Regulated Lead Acid) battery? Explain its construction, working, advantages, and applications. Compare it with a conventional Lead–Acid battery. **7M**

OR

4. a. Explain the construction, working, cell reactions, advantages, and applications of Lithium primary cells and Lithium–Ferrous Sulphide cells. **7M**  
b. Describe the structure and working of Ultra-thin Lithium Polymer batteries. Mention their advantages and applications in modern electronic devices. **7M**

**UNIT-III**

5. a. Outline the working principle, anodic and cathodic reactions and applications of Phosphoric Acid Fuel Cells (PAFC). **7M**  
b. Discuss the fabrication of electrodes and other important components used in fuel cells. **7M**

OR

6. a. Explain the environmental aspects of fuel cells. Discuss how fuel cells contribute to sustainable energy generation and reduction of environmental pollution. **7M**  
b. Outline the construction and working of Direct Methanol Fuel Cells (DMFC). Mention its advantages and limitations. **7M**

#### **UNIT-IV**

7. a. Explain the oxidation mechanism in chemical corrosion and the electrochemical mechanism of rust formation. **7M**  
b. Discuss the composition of paints. Explain the functions of pigments, binders, solvents, driers, extenders, and plasticizers. **7M**

OR

8. a. Explain the control against corrosion methods for Electro Plating of Copper. **7M**  
b. Explain the properties of a good paint. Discuss the applications, advantages, and limitations of paints in corrosion protection. **7M**

#### **UNIT-V**

9. a. Discuss the importance of Green Chemistry in reducing environmental pollution. Explain its advantages and limitations. **7M**  
b. What are Green Solvents? Explain their characteristics, advantages, and applications with suitable examples. **7M**

OR.

10. a. Explain the Phase Transfer Catalysis (PTC) method with suitable examples. Discuss its advantages in organic synthesis. **7M**  
b. Describe the green synthesis of Paracetamol. Explain the environmental advantages of the green route. **7M**