

Code No.: CH202BS

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**CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS**

I-B.TECH-II-Semester End Examinations (Supply) -February- 2024

**ENGINEERING CHEMISTRY
(Common for CSE, IT, CSD, CSC)**

[Time: 3 Hours]

[Max. Marks: 70]

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 20 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A

(20 Marks)

1. a) Write any two disadvantages of Hard water. [2M]
- b) What is Ozonization & write the uses of Ozonization in potable water? [2M]
- c) Define Bond order? [2M]
- d) What is Band energy gap? [2M]
- e) Define Batteries & write the types of Batteries? [2M]
- f) Define fuel cell & write the examples of fuel cell. [2M]
- g) Write the classification of fuels with examples. [2M]
- h) Write the applications of CNG. [2M]
- i) What are plastics and write the classification of plastics? [2M]
- j) Define Bio-Degradable polymers? [2M]

PART-B

(50 Marks)

2. Explain the softening method of hard water by Ion-exchange process with a neat diagram. [10M]
OR
3. Write a short note on
 - a) Units of Hardness [5M]
 - b) Reverse Osmosis [5M]
4. Explain with an example of Crystal Field Splitting of D-orbitals in tetrahedral complexes? [10M]
OR
5. Write the postulates of Molecular Orbital Theory and draw the energy level diagrams for N₂ molecule. [10M]
6. Derive Nernst's equation for EMF of a galvanic cell? [10M]
OR
7. Explain the working and applications of Hydrogen-Oxygen fuel cell with a neat diagram? [10M]
8. Explain briefly analysis of Flue gas by Orsat's apparatus? [10M]
OR
9. Explain preparation of synthetic petrol by Fischers-Tropsch's process with a neat diagram? [10M]
10. Write the factors influencing the rate of corrosion.
 - a) Nature of metal. [5M]
 - b) Nature of environment. [5M]
OR
11. Write the preparation, properties and applications of Bakelite? [10M]
