

Code No.: CH202BS

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CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS

I-B.TECH-II-Semester End Examinations (Supply) -January- 2025

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) How pitting corrosion can be controlled? [2M]
- b) Define hard water. What are the salts that cause hardness of water? [2M]
- c) What are the salient features of CFT? [2M]
- d) Give the Molecular Energy Level diagram of F_2 molecule. [2M]
- e) What are secondary cells? Give two examples. [2M]
- f) Differentiate between primary and secondary cells. [2M]
- g) Define Cracking and Knocking. [2M]
- h) What is CNG? Give its composition and characteristic properties. [2M]
- i) Define plastics. How they are classified? [2M]
- j) Define Cathodic protection. [2M]

PART-B

(50 Marks)

- 2.a) What are the steps involved in the potable water treatment? [6M]
 - b) State the principle involved in complexometric method. [4M]
- OR**
- 3.a) Write a note on Boiler troubles. [5M]
 - b) Explain about the Ion Exchange method of softening of water. [5M]
4. Explain the CFT of D-orbitals in Tetrahedral and Square planar geometries. [10M]
- OR**
- 5.a) Write a note on LCAO. [5M]
 - b) Explain the Energy Level diagram of O_2 . [5M]
- 6.a) Explain the construction and working of Calomel electrode in the determination of pH of a solution. [5M]
 - b) Explain the chemical reactions of Lead-Acid storage battery during charging and discharging. [5M]
- OR**
- 7.a) Write a brief note on Nernst's equation. [5M]
 - b) Explain construction and working of Methanol-Oxygen fuel cell. [5M]
8. Give an account on analyzing a coal sample by proximate analysis and give its significance. [10M]
- OR**
- 9.a) What is Octane number and Cetane number? What is their significance? [5M]
 - b) Explain about moving bed catalytic cracking. [5M]

- 10.a) Write the differences between Thermoplastic and Thermo setting plastics. [5M]
b) Give preparation, properties and engineering applications of Bakelite. [5M]
- OR**
- 11.a) Explain sacrificial anodic method of corrosion control with a neat diagram and give its applications. [5M]
b) How the nature of metal influences the rate of corrosion. [5M]
