

Code No.: R22CH102BS

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CMR ENGINEERING COLLEGE : HYDERABAD
UGC AUTONOMOUS
I-B.TECH-I-Semester End Examinations (supply) - September- 2023
ENGINEERING CHEMISTRY
(Common for ECE, CSE, IT)

[Time: 3 Hours]

[Max. Marks: 60]

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 10 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

(10 Marks)

1. a) Define hardness of water. [1M]
- b) List any two specifications of potable water. [1M]
- c) Define knocking. [1M]
- d) What are fuels? [1M]
- e) Give an example of primary and secondary battery. [1M]
- f) List any two applications of solar cells. [1M]
- g) Define Electroplating. [1M]
- h) What is galvanic corrosion? [1M]
- i) Define vulcanization. [1M]
- j) Give any two examples of polymers. [1M]

PART-B

(50 Marks)

2. Explain the Internal conditioning methods for removal of scales from boilers. [10M]
- OR**
3. Illustrate the Ion exchange process with a neat diagram. [10M]
4. Explain Ultimate analysis of coal and write its significance. [10M]
- OR**
- 5.a) Calculate the gross calorific value of coal having the following compositions carbon 88%, oxygen 6%, hydrogen 1%, nitrogen 2%, sulphur 1%. [5M]
- b) Describe moving bed catalytic cracking with a neat diagram. [5M]
6. Derive Nernst's equation and write its applications. [10M]
- OR**
7. Illustrate the construction, working and applications of H₂-O₂ fuel cell. [10M]
8. Discuss the various factors effecting the rate of corrosion. [10M]
- OR**
9. Interpret the types of Cathodic control protection methods. [10M]
- 10.a) Distinguish between thermoplastics and thermoset resins. [5M]
- b) Explain the preparation, properties and engineering applications of Teflon. [5M]
- OR**
11. Discuss the classification and engineering applications of Smart materials. [10M]
