Code No.: R22CH102BS | R22 | H.T.No. | | | 8 | R | | | | | |

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
I–B.TECH–I–Semester End Examinations (Regular) - January - 2025
ENGINEERING CHEMISTRY
(Common for ECE, IT & CSE)

[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) How the exhausted resins can be regenerated. [1M]
   b) List out various units of Hardness of Water [1M]
   c) What is cracking? [1M]
   d) What are the characteristics of good fuel. [1M]
   e) What is meant by reference electrode? [1M]
   f) Explain the classification of different types of batteries with examples. [1M]
   g) Develop any four factors that influence the rate of Corrosion. [1M]
   h) Tell about sacrificial anodic method. [1M]
   i) Outline the examples of addition and condensation polymerization? [1M]
   j) What is meant by polymerization? [1M]

PART-B **(50 Marks)**

2. Explain about the estimation of hardness of water by EDTA complexometric method. [10M]

OR

3.a) Explain scales and sludges and give prevention methods. [6M]
   b) Write short note on Priming and Foaming. [4M]

4. Outline an account of the analysis of coal by ultimate analysis. [10M]

OR

5. Explain the composition and applications of the following fuels.
   a) LPG [5M]
   b) CNG [5M]

6. Define reference electrode? Explain the construction and working of calomel electrode in the determination of pH of a solution. [10M]

OR

7. What is a fuel cell? Construct Methanol -Oxygen fuel cell. What are the advantages and applications of this cell? [10M]

8. What is Cathodic protection? What are the types of cathodic protection? Explain them. [10M]

OR

9.a) Define corrosion and explain different factors affecting rate of corrosion based on the nature of metal. [5M]
   b) Distinguish between Galvanizing and Tinning. [5M]

10. What is Natural Rubber? How is it obtained? Explain the process of Vulcanization of Raw Rubber. [10M]

OR

11.a) Explain the mechanism of Addition polymerization. [6M]
   b) Interpret the classification of Conducting polymers. [4M]

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