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Code No.: CH102BS | R20 | H.T.No. | | | 8 | R | | | | | |

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
I–B.TECH–I–Semester End Examinations (Supply) -February- 2024
ENGINEERING CHEMISTRY
(Common for CSM, ECE, MECH, AI&DS)

[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)	What are the Units of Hardness of Water?	[2M]
	b)	Explain the reactions involved in the principle of estimation of hardness of water by EDTA method.	[2M]
	c)	Discuss any two salient features of Crystal Field Theory.	[2M]
	d)	Illustrate the effects of Doping on Conductance.	[2M]
	e)	What is Electrochemical series?	[2M]
	f)	Discuss any two applications of Fuel cells.	[2M]
	g)	Define Calorific value of a Fuel.	[2M]
	h)	Explain Cracking and Knocking.	[2M]
	i)	Discuss Galvanic corrosion.	[2M]
	j)	What are the applications of BUNA-S?	[2M]

PART-B **(50 Marks)**

2.	Define Potable water. What are the specifications of potable water? Explain the disinfection of Potable water by Chlorination.	[10M]
	OR	
3.	What is Desalination? Discuss Reverse Osmosis Process with neat diagram.	[10M]
4.	Discuss the molecular orbital energy level diagrams of N_2 and calculate the bond order and Magnetic nature of N_2.	[10M]
	OR	
5.	Explain the Crystal Field Splitting of transition metal ion d- orbitals in Octahedral complexes.	[10M]
6.	Discuss the reactions involved in the Lithium ion battery with a neat diagram.	[10M]
	OR	
7.	Explain the construction, working and reactions involved in H_2O_2 Fuel cell.	[10M]
8.	Explain the process of refining of Petroleum.	[10M]
	OR	
9.	Determine the analysis of Flue gas by Orsat's apparatus.	[10M]
10.	Explain the preparation, properties and applications of PVC and Bakelite.	[10M]
	OR	
11.	Discuss the Sacrificial anodic methods for the protection of a metal surface.	[10M]

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