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

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
I–B.TECH–I–Semester End Examinations (Supply) - June - 2025
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)	Temporary Hardness is removed by boiling, justify your answer by giving equations.	[1M]
	b)	Explain Reverse Osmosis.	[1M]
	c)	Interpret how are solid fuels classified?	[1M]
	d)	Outline the advantages of Trans Esterification.	[1M]
	e)	Define Electrode Potential.	[1M]
	f)	Interpret the classification of cells with examples.	[1M]
	g)	Summarize Galvanic corrosion.	[1M]
	h)	Elaborate why coating of Zinc on Iron is called sacrificial anode?	[1M]
	i)	List the monomers of Bakelite.	[1M]
	j)	Explain vulcanization of rubber.	[1M]

PART-B **(50 Marks)**

2.		Outline EDTA method to determine Hardness of water.	[10M]
		OR	
3.	a)	Explain Scale and Sludge formation.	[6M]
	b)	How is Reverse Osmosis used for Desalination of water?	[4M]
4.	a)	Distinguish HCV and LCV of a fuel?Apply Dulong's formula to calculate HCV and LCV for a sample of coal contains Carbon=88%, Hydrogen=8%,Oxygen=2% and remaining is ash.	[6M]
	b)	Discuss about Gaseous fuels.	[4M]
		OR	
5.	a)	With the help of a neat diagram Interpret Moving Bed catalytic cracking method of Petroleum.	[6M]
	b)	Define Octane number and Cetane number.	[4M]
6.	a)	Explain the construction and functioning of Galvanic cell.	[6M]
	b)	Summarize Lithium ion battery with the reactions.	[4M]
		OR	
7.	a)	Elaborate the construction and working of Calomel electrode.	[6M]
	b)	Write short notes on fuel cells. Give examples. Mention the advantages of fuel cells.	[4M]
8.		Explain rusting of Iron with the help of Electrochemical theory of corrosion by evaluation of Hydrogen and absorption of Oxygen.	[10M]
		OR	
9.	a)	Evaluate the two Cathodic protection methods given to metals when exposed to corrosion environment.	[6M]
	b)	Distinguish between Galvanizing and Tinning.	[4M]

10.a) List out the differences between Addition and Condensation polymerization. [6M]

b) Discuss the preparation and applications of Poly Vinyl Chloride and Teflon. [4M]

OR

11.a) Make a note on synthesis and applications of Poly Lactic Acid and Poly Vinyl Acetate. [6M]

b) Define Smart materials and mention their applications. [4M]

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